

RECORDING MEDIA DEVICE

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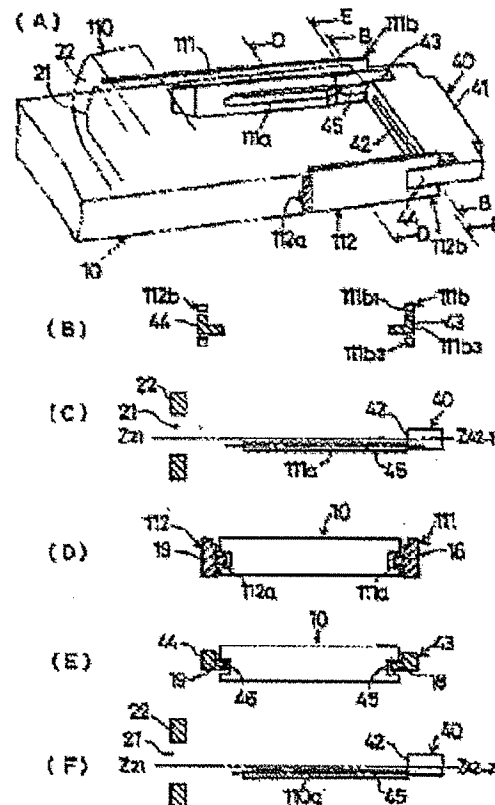
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Abstract of JP2003173423

PROBLEM TO BE SOLVED: To improve the positioning accuracy to an inserting port of a connector in a recording media device provided with a movable connector.

SOLUTION: A front member 110 has arm parts 111, 112 integrated with a front bezel 22. The arm parts 111, 112 have guide rails 111a, 112a for guiding guide grooves 18, 19 formed on side faces of an inserted recording media 10. A connector 40 has arm parts 43, 44. The arm parts 43, 44 have guide rails 45, 46. The recording media 10 having been passed through the inserting port 21 is inserted in a state of fitting the guide grooves 18, 19 into the guide rails 111a, 112a, and further guide grooves 18, 19 are fitted to the guide rails 45, 46. Whereby the connector 40 is positioned to the inserting port 21 through the recording media 10 positioned by the guide rails 111a, 112a.

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CLAIMS

[Claim(s)]

[Claim 1]In a recording media device to which a connector is provided movable, an archive medium inserted through a loading slot of a front member is connected to the above-mentioned connector, and the above-mentioned connector is moved according to insertion of a subsequent archive medium, The above-mentioned front members are an arm which has a guide part which guides the side of an inserted archive medium a portion which the above-mentioned loading slot has formed, and composition which it has in one, and the above-mentioned connector, A recording media device which is the composition of having the side of an inserted archive medium, and a fitting part which fits in, and is characterized by considering the above-mentioned connector as composition positioned to the above-mentioned loading slot via an archive medium inserted a guide part of the above-mentioned arm showing around.

[Claim 2]In the recording media device according to claim 1, the above-mentioned arm, Are a positioning regulation part which a part of above-mentioned connector fits in, and regulates a position of this connector in the state before the above-mentioned archive medium is inserted the composition which it has, and the above-mentioned connector, A recording media device having composition which a position is regulated and is positioned by positioning regulation part of the above-mentioned arm to the above-mentioned loading slot in a state before the above-mentioned archive medium is inserted.

[Claim 3]In a recording media device to which a connector is provided movable, an archive medium inserted through a loading slot of a front member is connected to the above-mentioned connector, and the above-mentioned connector is moved according to insertion of a subsequent archive medium, The above-mentioned front members are an arm prolonged back a portion which the above-mentioned loading slot has formed, and composition which it has in one, and the above-mentioned connector, A recording media device which is the composition guided and moved to an arm to the above-mentioned arm, and is characterized by considering the above-mentioned connector as composition positioned to the above-mentioned loading slot by the above-mentioned arm.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the mechanism in which the position over the loading slot of a connector is decided in the recording media device of composition of starting a recording media device, especially an archive medium being inserted through the loading slot of a front bezel, and being connected with a connector.

[0002]

[Description of the Prior Art]Drawing 14 shows the outline composition of the conventional recording media device 1. The recording media device 1 is the composition that an archive medium is inserted through the loading slot of a front bezel, it is connected with a connector, and a connector is back moved by insertion of a subsequent archive medium. The connector 4 is attached with the base member 2 and the front bezel 3 attached to the base member 2, and it has the archive-medium holder 5 currently supported on the base member 2. The connector 4 is arranged in the position of the same height as the loading slot 3a of the front bezel 3. The archive medium 7 is inserted in the Y1 direction through the loading slot 3a of the front bezel 3, and is connected with the connector 4.

[0003]In order to connect smoothly with the connector 4 the archive medium 7 inserted through the loading slot 3a of the front bezel 3, it is required to locate the position of the connector 4 in the position of the same height as the loading slot 3a of the front bezel 3 with sufficient accuracy.

[0004]

[Problem(s) to be Solved by the Invention]In the above-mentioned recording media device 1, the position over the loading slot 3a of the connector 4 on a Z1-Z 2-way, It is influenced with the dimensional tolerance of the base member 2, the dimensional tolerance of the front bezel 3, the dimensional tolerance of the archive-medium holder 5, the accuracy of the attachment to the base member 2 of the front bezel 3, the accuracy of the attachment to up to the base member 2 of the holder 5, etc. That is, many factors which have on the position over the loading slot 3a of the connector 4 existed. Therefore, it was difficult to decide the position over the loading slot 3a of the connector 4 with sufficient accuracy.

[0005]For this reason, there was a possibility that it might break out that the archive medium 7 inserted through the loading slot 3a of the front bezel 3 depending on the accuracy of each part article and the accuracy of an assembly is hard to be connected with the connector 4 smoothly. There was also a possibility that it might break out whether the archive medium 7 strikes at the rear face of the front bezel 3 at the time of the ejection to Y 2-way and that it keeps.

[0006]In order to make high accuracy of the position over the loading slot 3a of the connector 4, The dimensional tolerance of the base member 2, the dimensional tolerance of the front bezel 3, the dimensional tolerance of the archive-medium holder 5, When it is necessary to make severe specially accuracy of the attachment to the base member 2 of the front bezel 3, and accuracy of the attachment to up to the base member 2 of the holder 5 and they are carried out in this way, there is a problem that the manufacturing cost of the recording media device 1 will become high fairly.

[0007]Then, an object of this invention is to provide the recording media device which solved the aforementioned problem.

[0008]

[Means for Solving the Problem]An archive medium in which a connector is provided movable and an invention of claim 1 was inserted through a loading slot of a front member is connected to the above-mentioned connector, According to insertion of a subsequent archive medium, the above-mentioned connector in a recording media device moved the above-mentioned front member, Are an arm which has a guide part which guides the side of an inserted archive medium a portion which the above-mentioned loading slot has formed, and the composition which it has in one, and the above-mentioned connector, It is the composition of having the side of an inserted archive medium, and a fitting part which fits in, and the above-mentioned connector is considered as composition positioned to the above-mentioned loading slot via an archive medium inserted a guide part of the above-mentioned arm showing around.

[0009]Composition positioned to a loading slot via an archive medium inserted a connector being guided by guide part of a front member and an arm of one, Even if it does not carry out making common difference of parts severe specially, or stopping dispersion in an assembly severely specially, accuracy of a position over a loading slot of a connector is made high compared with the former.

[0010]In the recording media device according to claim 1, an invention of claim 2 the above-mentioned arm, Are a positioning regulation part which a part of above-mentioned connector fits in, and regulates a position of this connector in the state before the above-mentioned archive medium is inserted the composition which it has, and the above-mentioned connector, In a state before the above-mentioned archive medium is inserted, it has composition which a position is regulated and is positioned by positioning regulation part of the above-mentioned arm to the above-mentioned loading slot.

[0011]By a positioning regulation part of an arm, a position over a loading slot of a connector in a state before an archive medium is inserted becomes settled with sufficient accuracy.

[0012]An archive medium in which a connector is provided movable and an invention of claim 3 was inserted through a loading slot of a front member is connected to the above-mentioned connector, According to insertion of a subsequent archive medium, the above-mentioned connector in a recording media device moved the above-mentioned front member, It is a portion in which the above-mentioned loading slot has formed an arm prolonged back, and the composition of having in one, the above-mentioned connector is composition guided and moved to an arm to the above-mentioned arm, and the above-mentioned connector is considered as composition positioned to the above-mentioned loading slot by the above-mentioned arm.

[0013]Even if composition with which a connector is positioned to a loading slot by front member and an arm of one does not carry out making common difference of parts severe specially, or stopping dispersion in an assembly severely specially, it makes high accuracy of a position over a loading slot of a connector compared with the former. In order not to use an archive medium, it is not influenced by a dimensional tolerance of an archive medium.

[0014]

[Embodiment of the Invention]First, the recording media device 20 of explanation which becomes one example of this invention with reference to drawing 1 (A) thru/or (G) for convenience is explained roughly. Y1 aims to insert the archive medium 10, and Y2 aims to take out the archive medium 10. The recording media device 20 is used, for example, being included in electronic equipment, such as a digital camera and a computer. As shown in drawing 10, the archive medium 10 is the core box shape of an approximately quadrangle, and is the composition of having a semiconductor device or a magnetic disk etc. which records information on an inside, and having the connector 11 at the tip of the direction to insert. The composition of having a sequence of a pad terminal in the tip side may be sufficient as the archive medium 10.

[0015]The recording media device 20 is provided with the following.

The front bezel 22 in which the loading slot 21 where the archive medium 10 is inserted is formed.

The archive-medium holder 30 of the box shape holding the archive medium 10 which is

supported in the Y1 direction movable and inserted in it.

The connector 40 to which it has provided in the inner part of the Y1 direction end of the archive-medium holder 30, and the above-mentioned connector 11 is connected.

The archive-medium holder locking mechanism 50, the archive-medium holder moving mechanism 60, and the covering mechanism 70.

The covering mechanism 70 is provided with the following.

The 1st lid 71.

The 2nd lid 77.

The flexible flat cable 80 is connected to the Y1 direction side of the connector 40.

[0016]The archive-medium holder locking mechanism 50 is the composition that a lock is canceled, when it locked so that 30 might not be moved in the Y archive-medium holder 1 direction, and the archive medium 10 is inserted until the connector 11 is connected to the connector 40 into the archive-medium holder 30. The archive-medium holder moving mechanism 60 moves the archive-medium holder 30 which moved the archive-medium holder 30 which moved in the Y1 direction and exceeded the position P0 to the position P1, moved to Y 2-way, and exceeded the position P0 to the position P2. The 1st lid 71 plugs up the loading slot 21, when the archive medium 10 is not accommodated. The 2nd lid 77 plugs up the loading slot 21, when the archive medium 10 is accommodated.

[0017]In the state before accommodating the archive medium 10, the recording media device 20 is in the state which shows in drawing 1 (A). The archive-medium holder 30 is located in the position P2, and is locked by the locking mechanism 50. The 1st lid 71 has plugged up the loading slot 21.

[0018]As shown in drawing 1 (A), an operator holds the archive medium 10 by hand, As 11 is inserted through the loading slot 21 towards the connector Y1 side, and the 1st lid 71 is pushed and opened, it inserts into the recording media device 20 and it is shown in drawing 1 (B), the rear end face 12 of the archive medium 10 is pushed with a finger, and the archive medium 10 is pushed in strongly.

[0019]By this operation, first, as shown in drawing 1 (B), the connector 11 is connected to the connector area 42 of the connector 40 which is the other party of the connector 11. Then, the lock of the locking mechanism 50 being canceled and the archive medium 10 pushing the archive-medium holder 30 and the connector 40, it is further inserted into the recording media device 20, and 40 is moved in the Y archive-medium holder 30 and connector 1 direction.

[0020]If the archive-medium holder 30 passes the position P0 as shown in drawing 1 (C), the holder moving mechanism 60 will move the archive-medium holder 30 in the Y1 direction to the position P1, as shown in drawing 1 (D). Since the connector 11 is connected to the connector area 42, it is moved in the Y archive-medium holder 1 direction, and is drawn in the recording media device 20, and, as for the archive medium 10, the whole is accommodated in the recording media device 20. The 2nd lid 77 plugs up the loading slot 21.

[0021]This state is in the state where it was equipped with the archive medium 10 in the recording media device 20, and information is written in the archive medium 10 in this state.

[0022]In completing the writing of information and discharging the archive medium 10, an operator does ejection operation of pushing ejection **. If ejection operation is carried out, as shown in drawing 1 (E), the archive-medium holder 30 will be moved to Y 2-way, the 2nd lid 77 will be pushed and opened by the archive medium 10, and the rear end face 12 of the archive medium 10 will project from the loading slot 21. If the archive-medium holder 30 passes the position P0, the holder moving mechanism 60 will move the archive-medium holder 30 to Y 2-way to the position P2, as shown in drawing 1 (F).

[0023]In this state, as shown in drawing 1 (G), an operator holds by hand the portion 13 projected from the loading slot 21 among the archive media 10, and lengthens it to Y 2-way strongly. The connector 11 is removed from the connector area 42 by this, and the archive medium 10 is taken out from the recording media device 20. If the archive medium 10 is taken out from the recording media device 20, as shown in drawing 1 (A), the 1st lid 71 will plug up the loading slot 21.

[0024]Next, operation of a recording media device is explained about the recording media device

20 which becomes one example of this invention, referring to drawing 1 (A) thru/or (F).

[0025]The perspective view which looked at the recording media device 20 which drawing 2 was piled up and has been docked from the upper part by the side of the front bezel 22, The perspective view as which drawing 3 regarded the recording media device 20 from the upper part by the side of the back, the perspective view as which drawing 4 regarded the recording media device 20 from the lower part by the side of the back, The top view of the recording media device 20 which drawing 5 (A) was piled up and has been docked, the sectional view where drawing 5 (B) meets a B-B line among drawing 5 (A), and drawing 5 (C) are bottom views. As for X1-X2, a depth direction and Z1-Z2 are height directions the cross direction and Y1-Y2. The same numerals are given to the component part shown in drawing 1 (A) thru/or (G), and a corresponding portion among each figure.

[0026]The recording media device 20-1 and 20-2 are in the state where it was piled up and docked. The upper recording media device 20-1 is in the state where it is equipped with the archive medium 10 in the recording media device 20, and the lower recording media device 20-2 is in the state where it is not equipped with the archive medium 10 in the recording media device 20.

[0027]The recording media device 20 has the base member 100, the front member 110, the archive-medium holder 30, the connector 40, the archive-medium holder locking mechanism 50, the archive-medium holder moving mechanism 60, the covering mechanism 70, the ejecting mechanism 120, and cover member 130 grade.

[0028]As shown in drawing 2 and drawing 4, the base member 100 is allotted to Z2 side, and supports the front member 110, the locking mechanism 50, the holder moving mechanism 60, the covering mechanism 70, and ejecting mechanism 120 grade. As shown in drawing 3, to the base member 100 on the both sides of the cross direction by the side of Y2, and both sides of the cross direction by the side of Y1. As the four legs 101 and the holder part 102 are formed, and the recording media device 20 is used alone and also it is shown in drawing 2 and drawing 5 (B), For example, the leg 101 of the upper recording media device 20-1 is fixed to the holder part 102 of the lower recording media device 20-2, and two recording media device 20-1,20-2 is used also in the state where it was piled up, connected and docked.

[0029]it is shown in drawing 2 and drawing 5 (A) and (B) — as — the cover member 130 — the front bezel 22 — it is arranged immediately at Y1 side, the X1-X2 side is fixed to the base member 100, and the archive-medium holder 30 upper part is covered. The space 131 for opening and accommodating the 1st level lid 71 between the cover member 130 and the upper surface 14 of the archive medium 10 with which it was equipped, is formed.

[0030]As shown in drawing 3, the front member 110 is provided with the following.

The front bezel 22 in which it has fixed to the 100 base memberY2 side, and the loading slot 21 is formed.

The two arms 111 and 112 prolonged in the Y1 direction from the position of the both sides of the loading slot 21 among the front bezels 22.

[0031]As shown in drawing 3 and drawing 5 (B), the archive-medium holder 30 has the size shape corresponding to the archive medium 10, is located above the base member 100, is supported by the arms 111 and 112, and is movable in Y1 direction along with the arms 111 and 112. This archive-medium holder 30 holds the inserted ten archive-mediumY1 side. The connector 40 is fixed to 30Yarchive-medium holder 1 side edge toward Y 2-way. The connector 40 has another connector area 41 in the Y1 side. The contact terminal of the connector 40 is prolonged even in the connector area 41. As shown in drawing 3, the connector of the end of the flexible flat cable 80 is connected to the connector area 41. The flexible flat cable 80 is guided through the hole 104 of the wall 103 by the side of the 100 base memberY1 which has risen.

[0032]The lock arm 52 currently supported by the upper surface of the archive-medium holder 30 rotatable at the axis 51 as the archive-medium holder locking mechanism 50 is shown in drawing 3. It is the composition of having the lock plate 53 fixed on the base member 100, the lock pin 54 on the lock arm 52, and a torsion coil spring. Usually, the lock pin 54 is stopped by the lock plate 53, and 30 is located in the archive-medium holderP2, and it is locked so that it

may not move in the Y1 direction. Although the archive medium 10 is pushed in strongly, the position of the connector 40 is being fixed and the connector 11 is certainly connected to the connector area 42. If the archive medium 10 is inserted until the connector 11 is connected to the connector area 42, The front end surface 17 of 10Yarchive-medium 1 direction pushes the lock arm 52, and makes it rotate, the lock pin 54 separates from the lock plate 53, a lock is canceled, and they are moved in the Y1 direction, the archive-medium holder 30 and the connector 40 being pushed by the archive medium 10 pushed in.

[0033]As shown in drawing 4 and drawing 5 (C), the archive-medium holder moving mechanism 60, It is the composition which uses the torsion coil spring 61, has fitted into the pin 62 by which the arm 61a of 1 is planted on the undersurface of the base member 100, and has fitted into the pin 63 by which another arm 61b is planted on the undersurface of the holder 30. If 30 is moved in the Yarchive-medium holder located in P2 1 direction, If the difference angle beta of the arm 61a of the torsion coil spring 61 and the arm 61b is narrowed, it becomes the narrowest at P0 and P0 is passed, the above-mentioned difference angle will come to become large, and the archive-medium holder 30 will be moved in the Y1 direction by the spring power of the torsion coil spring 61 to P1. If the archive-medium holder 30 located in P1 is moved to Y 2-way, If the difference angle of the arm 61a of the torsion coil spring 61 and the arm 61b is narrowed, it becomes the narrowest at P0 and P0 is passed, the above-mentioned difference angle will come to become large, and the archive-medium holder 30 will be moved to Y 2-way by the spring power of the torsion coil spring 61 to P2 of origin.

[0034]As shown in drawing 5 (B), the covering mechanism 70 is provided with the following. The 1st lid 71 that has closed the loading slot 21 when the archive medium 10 is not accommodated.

The 2nd lid 77 that has closed the loading slot 21 when the archive medium 10 is accommodated.

[0035]The ejecting mechanism 120 is provided with the following.

The rod 121 currently supported by the Y1-Y 2-way movable at the 100 base member X1 side as shown in drawing 2.

Ejection ** 122 which has fixed to 121Yrod 2 end, and has projected from the opening 113 of the front bezel 22.

The eject lever 124 fixed to the shaft member 123 fixed to 100Ybase member 1 one end.

The ejection pole 125 of the end of X 2-way of the eject lever 124.

The end of 121Yrod 1 direction is connected with the end of 124Xeject lever 1 direction. The ejection pole 125 has countered with the end of 30Yholder 1 direction. In the state where it is not equipped with the archive medium 10 in the recording media device 20. Like the lower recording media device 20, ejection ** 122 is dented in the opening 113, and has projected ejection ** 122 from the opening 113 like the upper recording media device 20 in the state where it is equipped with the archive medium 10 in the recording media device 20.

[0036]When ejection ** 122 is pushed, the eject lever 124 rotates counterclockwise, and the ejection pole 125 pushes the holder 30 and makes it move to Y 2-way.

[0037]In accommodating the archive medium 10, an operator performs operation which is inserted into the loading slot 21 which holds the archive medium 10 by hand, and whose indicator 77a of "MEDIA OUT" can be seen, and is pushed in strongly. By this operation, the connector 11 is connected to the connector 40, the lock of the locking mechanism 50 is canceled, then the holder moving mechanism 60 operates, and as the archive medium 10 shows the recording media device 20-1 of the drawing 5 (B) upper part, it is drawn in an inside and accommodated.

[0038]In completing the writing of information and discharging the archive medium 10, an operator pushes ejection ** 122. The ejecting mechanism 120 operates, the holder 30 is moved to Y 2-way by this operation, and from the middle, the holder moving mechanism 60 operates, the holder 30 is moved by the holder moving mechanism 60, and as shown in drawing 3, the rear end part 12 of the archive medium 10 projects from the loading slot 21.

[0039]Next, the connector positioning mechanism 200 which determines the position of the connector 40 which makes the important section of this invention is explained.

[0040] Drawing 6 is in a state, i.e., the state before inserting the archive medium 10, when 30 is located in the holder P2. Drawing 7 is in a state, i.e., a state when equipped with the archive medium 10, when 30 is located in the holder P1. Drawing 8 and drawing 9 show positioning and physical relationship over the loading slot 21 of the connector 40. The state of positioning when the connector 40 has fitted in with the guide rails 111 and 112 before drawing 8 (C) inserts the archive medium 10 namely, The connector 11 is connected to the connector area 42, and the state of positioning just before drawing 8 (E) inserts the archive medium 10 and the connector 11 is connected to the connector area 42, and drawing 9 (B) show the state of positioning in the state where the connector 40 separated from the arms 111 and 112.

[0041] This connector positioning mechanism 200 is the composition of deciding the position of the connector 40 using the archive medium 10.

[0042] As shown in drawing 10, the archive medium 10 has the guide grooves 18 and 19 which have extended on the side on either side at the longitudinal direction, and it has the connector 11 at the tip of the path of insertion, and the rear end face 12 is arc shape.

[0043] As shown in drawing 6 (C), the front member 110 is provided with the following.

The front bezel 22 in which it is forming parts of a synthetic resin and the loading slot 21 is formed.

The two arms 111 and 112 prolonged in the Y1 direction from the position of the both sides of the loading slot 21 among the front bezels 22.

The size of the loading slot 21 is a size corresponding to the archive medium 10, and is not large specially.

[0044] As shown in drawing 9 (A), the arm 111 has the guide rail 111a prolonged in the Y1-Y 2-way in an inside field, and has the fork part 111b for positioning at Y1 end in it. The guide rail 111a is formed on the rest 111c. The fork part 111b consists of the two finger parts 111b1, 111b2 and the crevice 111b3 in the meantime. The arm 112 is also the same shape as the arm 111, and it has the guide rail 112a and the fork part 112b. The guide rails 111a and 112a constitute a guide part. The fork parts 111b and 112b constitute a positioning regulation part.

[0045] Here, since the arms 111 and 112 are the front bezel 22 and one, their accuracy of the position over the loading slot 21 of the guide rails 111a and 112a is high, and their accuracy of the position over the loading slot 21 of the fork parts 111b and 112b is high.

[0046] As shown in drawing 7, the archive-medium holder 30 is provided with the following.

It is the size corresponding to the archive medium 10, the field and the upper surface by the side of Y2 of a box have the shape used as the opening, and they are the bottom plate part 32 and the side plate parts 31 and 33 of both sides.

The Kamiita part 34 by the side of Y1.

As shown in drawing 6 (B) and drawing 7 (B), the archive-medium holder 30, It is movable in Y1 direction, having stopped the hooking portions 31a and 33a which bend the portion by the side of Z1 by the side of the side plate part 31 and Y2 [33] by having wrapped 112 from Z2 side with the arm 111, and have been formed in the inverted-U character to the arms 111 and 112, respectively, and being supported by the arms 111 and 112. The shaft member 71a of the 1st lid 71 is constructed across horizontally among the hooking portions 31a and 33a. The end lifting part 32a which the bottom 15 of the archive medium 10 hits is formed in the bottom plate part 32.

[0047] The connector 40 is provided with the following as shown in drawing 9 (A).

The connector area 42 which has turned to Y 2-way.

The connector area 41 which has turned to Y 2-way.

The arm 43 which came out from the side by the side of X2, made the shape of L type, and has been prolonged in Y 2-way.

The arm 44 which came out from the side by the side of X1, made the shape of L type, and has been prolonged in Y 2-way.

The guide rails 45 and 46 prolonged in the Y1-Y 2-way, respectively are formed in the field inside the arms 43 and 44. The contact terminal of the connector 40 is prolonged even from the connector area 42 to the connector area 41. The connectors 40 are forming parts of a synthetic resin, the connector areas 41 and 42 and the arms 43 and 44 are one, and their accuracy of the

position over the connector area 42 of the arms 43 and 44 is high, and their accuracy of the position over the connector area 42 of the guide rails 45 and 46 is high.

[0048]The connector 40 is fixed to the upper surface of 32Ybottom plate part 1 side edge of the archive-medium holder 30.

[0049]Here, the front member 110, the connector 40, and the archive-medium holder 30 are the usual dimensional tolerances, and the accuracy of the attachment to the archive-medium holder 30 of the connector 40 is also the usual common difference.

[0050]Next, positioning of the Z1-Z 2-way to the loading slot 21 of the connector area 42 is explained.

[0051]Here, Z21 is a position of the Z1-Z 2-way of the loading slot 21. Z42-1, Z42-2, and Z42-3 is a position of the Z1-Z 2-way of the connector area 42.

(1) The state before inserting the archive medium 10 (refer to drawing 6 (A) and drawing 8 (A), (B), (C))

30 is located in the archive-medium holderP2, and as shown in drawing 8 (A) and (B), the arms 43 and 44 have fitted into the fork parts 111b and 112b, respectively. When the arms 43 and 44 have fitted into the fork parts 111b and 112b, respectively, as shown in drawing 8 (C), the position of the Z1-Z 2-way to the loading slot 21 of the connector area 42 is decided to be Z42-1.

[0052]The accuracy of the position over the loading slot 21 of the fork parts 111b and 112b is high here, the accuracy of the position over the connector area 42 of the arms 43 and 44 accumulates highly, and position Z42-1 of the connector area 42 is located in the position corresponding to [abbreviated] the position Z21 of the loading slot 21.

[0053]The guide rails 45 and 46 have aligned with the guide rails 111a and 112a, respectively.

(2) A state just before inserting the archive medium 10 and connecting the connector 11 to the connector area 42 (refer to drawing 6 (A), drawing 8 (A), (D), (E), and (F))

The archive medium 10 inserted through the loading slot 21 is inserted the guide grooves 18 and 19 fitting into the guide rails 111a and 112a, respectively, as shown in drawing 8 (D).

[0054]If the archive medium 10 is inserted further, as shown in drawing 8 (E), a near portion will fit into the guide rails 45 and 46 among [Y1] the guide grooves 18 and 19. Therefore, the guide grooves 18 and 19 of the archive medium 10 change the guide rails 45 and 46 into the state where it aligned with the guide rails 111a and 112a, and the connector area 42. As shown in drawing 8 (F), it is positioned by position Z42-2 via the archive medium 10 on the basis of the guide rails 111a and 112a.

[0055]Therefore, even if it does not do the work which moves the archive medium 10 suitably and discovers the connector area 42, the connection with the connector area 42 of the connector 11 is smoothly made only by pushing in the archive medium 10.

[0056]The archive medium 10 cuts the bottom 15, and is pushed up in the aZlifting part 321 direction, and play of the Z1-Z 2-way of the guide grooves 18 and 19 and the guide rails 111a and 112a is brought near by it in the Z1 direction. Therefore, position Z42-2 of the connector area 42 did not receive the influence of play of the Z1-Z 2-way of the guide grooves 18 and 19 and the guide rails 111a and 112a, but it was decided with sufficient accuracy.

(3) The state which was moved in the 40Yconnector 1 direction and from which it separated from the arms 111 and 112 (refer to drawing 7 (A) and drawing 9 (A) thru/or (D))

The connector area 42 is connected to the connector 11 by the side of an archive medium, and, as for the position of the connector area 42, Z42-3 is determined by the archive medium 10.

[0057]As shown in drawing 9 (B), the guide grooves 18 and 19 of the archive medium 10 have fitted into the guide rails 111a and 112a, and the position over the loading slot 21 of the archive medium 10 is determined with sufficient accuracy.

[0058]As shown in drawing 9 (C), the guide rails 45 and 46 have fitted into the guide grooves 18 and 19, and the position over the archive medium 10 of the connector 40 is determined.

[0059]Therefore, it is continued by positioning it position Z42-3 corresponding to the loading slot 21 even after the connector 40 separates from the connector area 42 from the arms 111 and 112. For this reason, when ejection operation is carried out and the archive medium 10 is discharged, the arms 43 and 44 of the connector 40 fit into the fork parts 111b and 112b

smoothly.

[0060]When the archive medium 10 is the composition of having the guide rail parts 140 and 141 of a convex on the side at drawing 11 as the numerals 10A show, The arms 111A and 112A of the front member 110 are the composition of having the guide groove 150,151, respectively, what is necessary is just to also consider the arms 43A and 44A of the connector 40 as the composition which has the guide groove 160,161, respectively, and the same effect as the aforementioned composition is acquired.

[0061]Next, the connector positioning mechanism 200B which becomes another example which determines the position of the connector 40 is explained.

[0062]Drawing 12 decomposes and shows the front member 110B and the holder 30B. Drawing 13 shows the state where the holder 30B has fitted into the front member 110B.

[0063]This connector positioning mechanism 200B is the composition of not using the archive medium 10B for positioning. The archive medium 10B has neither a guide groove nor a guide rail on the side on either side.

[0064]The front member 110B is provided with the following.

The front bezel 22B in which the loading slot 21B is formed.

The two arms 111B and 112B prolonged in the Y1 direction from the position of the both sides of the loading slot 21B among the front bezels 22B.

The guide rail 170,171 is formed inside the arms 111B and 112B.

[0065]The archive-medium holder 30B is approximately box-like [which has the bottom plate part 180 and the back plate part 183 by the side of the side plate part 181,182 and Y1 of both sides], and the connector 40B is fixed to the back plate part 183, and it is turned to and formed in the inside in Y 2-way. The guide groove 184,185 is formed in the field of the outside of the side plate part 181,182. As shown in drawing 13 (A) and (C), the holder 30B fitted the guide groove 184,185 into the guide rail 170,171, respectively, was supported by the arms 111B and 112B, is settled among the arms 111B and 112B, and is movable to a Y1-Y 2-way.

[0066]As shown in drawing 13 (B), even if the position of the connector 40B is located in which position on a Y1-Y 2-way about a Z1-Z 2-way top, it is decided with the guide rail 170,171 of the arms 111B and 112B, and is provided in Z40B. This position Z40B is a position corresponding to the position Z21B of the loading slot 21B. The influence of the dimensional tolerance of the archive medium 10B does not receive the position Z40B, either.

[0067]Therefore, the connection with the connector 40B of the connector 11B at a tip is smoothly made only by pushing in the archive medium 10B.

[0068]Devise the shape of the above-mentioned connector 40B, and the holder 30B is lost, The connector 40B itself fits into the guide rail 170,171, it is supported by the arms 111B and 112B, is settled among the arms 111B and 112B, and it may constitute so that it may be movable to a Y1-Y 2-way.

[0069]

[Effect of the Invention]Like ***, according to this invention, have provided the connector movable and the archive medium inserted through the loading slot of a front member is connected to a connector, According to insertion of a subsequent archive medium, a connector in the recording media device moved a connector, the composition positioned to a loading slot via the archive medium inserted the guide part of a front member and the arm of one showing around -- or, Since it has composition positioned to a loading slot by the above-mentioned arm, Have attached the base member to the front bezel and the archive-medium holder is supported on the base member, It compares with the conventional composition which is the composition of having attached the connector to the archive-medium holder, There are few parts and, therefore, the grade of influence which the common difference of parts and dispersion of an assembly exert on the accuracy of the position over the loading slot of a connector can be made small, Therefore, even if it does not carry out making common difference of parts severe specially, or stopping dispersion in an assembly severely specially, accuracy of the position over the loading slot of a connector where it moves can be made high compared with the former. The operation in which the archive medium inserted through the loading slot by this compared with the former even if it did not enlarge a loading slot specially like before is connected with a connector can be

made smoothly. If it is in the recording media device of composition of that the whole archive medium is accommodated, the operation by which an archive medium is discharged through a loading slot can be smoothly made compared with the former.

[Translation done.]

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TECHNICAL FIELD

[Field of the Invention]This invention relates to the mechanism in which the position over the loading slot of a connector is decided in the recording media device of composition of starting a recording media device, especially an archive medium being inserted through the loading slot of a front bezel, and being connected with a connector.

[Translation done.]

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PRIOR ART

[Description of the Prior Art]Drawing 14 shows the outline composition of the conventional recording media device 1. The recording media device 1 is the composition that an archive medium is inserted through the loading slot of a front bezel, it is connected with a connector, and a connector is back moved by insertion of a subsequent archive medium.

The connector 4 is attached with the base member 2 and the front bezel 3 attached to the base member 2, and it has the archive-medium holder 5 currently supported on the base member 2. The connector 4 is arranged in the position of the same height as the loading slot 3a of the front bezel 3. The archive medium 7 is inserted in the Y1 direction through the loading slot 3a of the front bezel 3, and is connected with the connector 4.

[0003]In order to connect smoothly with the connector 4 the archive medium 7 inserted through the loading slot 3a of the front bezel 3, it is required to locate the position of the connector 4 in the position of the same height as the loading slot 3a of the front bezel 3 with sufficient accuracy.

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EFFECT OF THE INVENTION

[Effect of the Invention] Like ***, according to this invention, have provided the connector movable and the archive medium inserted through the loading slot of a front member is connected to a connector. According to insertion of a subsequent archive medium, a connector in the recording media device moved a connector, the composition positioned to a loading slot via the archive medium inserted the guide part of a front member and the arm of one showing around -- or, Since it has composition positioned to a loading slot by the above-mentioned arm, the base member is attached to the front bezel and the archive-medium holder is supported on the base member.

It compares with the conventional composition which is the composition of having attached the connector to the archive-medium holder. There are few parts and, therefore, the grade of influence which the common difference of parts and dispersion of an assembly exert on the accuracy of the position over the loading slot of a connector can be made small. Therefore, even if it does not carry out making common difference of parts severe specially, or stopping dispersion in an assembly severely specially, accuracy of the position over the loading slot of a connector where it moves can be made high compared with the former.

The operation in which the archive medium inserted through the loading slot by this compared with the former even if it did not enlarge a loading slot specially like before is connected with a connector can be made smoothly. If it is in the recording media device of composition of that the whole archive medium is accommodated, the operation by which an archive medium is discharged through a loading slot can be smoothly made compared with the former.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention]In the above-mentioned recording media device 1, the position over the loading slot 3a of the connector 4 on a Z1-Z 2-way, It is influenced with the dimensional tolerance of the base member 2, the dimensional tolerance of the front bezel 3, the dimensional tolerance of the archive-medium holder 5, the accuracy of the attachment to the base member 2 of the front bezel 3, the accuracy of the attachment to up to the base member 2 of the holder 5, etc. That is, many factors which have on the position over the loading slot 3a of the connector 4 existed. Therefore, it was difficult to decide the position over the loading slot 3a of the connector 4 with sufficient accuracy.

[0005]For this reason, there was a possibility that it might break out that the archive medium 7 inserted through the loading slot 3a of the front bezel 3 depending on the accuracy of each part article and the accuracy of an assembly is hard to be connected with the connector 4 smoothly. There was also a possibility that it might break out whether the archive medium 7 strikes at the rear face of the front bezel 3 at the time of the ejection to Y 2-way and that it keeps.

[0006]In order to make high accuracy of the position over the loading slot 3a of the connector 4, The dimensional tolerance of the base member 2, the dimensional tolerance of the front bezel 3, the dimensional tolerance of the archive-medium holder 5, When it is necessary to make severe specially accuracy of the attachment to the base member 2 of the front bezel 3, and accuracy of the attachment to up to the base member 2 of the holder 5 and they are carried out in this way, there is a problem that the manufacturing cost of the recording media device 1 will become high fairly.

[0007]Then, an object of this invention is to provide the recording media device which solved the aforementioned problem.

[Translation done.]

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MEANS

[Means for Solving the Problem]An archive medium in which a connector is provided movable and an invention of claim 1 was inserted through a loading slot of a front member is connected to the above-mentioned connector, According to insertion of a subsequent archive medium, the above-mentioned connector in a recording media device moved the above-mentioned front member, Are an arm which has a guide part which guides the side of an inserted archive medium a portion which the above-mentioned loading slot has formed, and the composition which it has in one, and the above-mentioned connector, It is the composition of having the side of an inserted archive medium, and a fitting part which fits in, and the above-mentioned connector is considered as composition positioned to the above-mentioned loading slot via an archive medium inserted a guide part of the above-mentioned arm showing around.

[0009]Composition positioned to a loading slot via an archive medium inserted a connector being guided by guide part of a front member and an arm of one, Even if it does not carry out making common difference of parts severe specially, or stopping dispersion in an assembly severely specially, accuracy of a position over a loading slot of a connector is made high compared with the former.

[0010]In the recording media device according to claim 1, an invention of claim 2 the above-mentioned arm, Are a positioning regulation part which a part of above-mentioned connector fits in, and regulates a position of this connector in the state before the above-mentioned archive medium is inserted the composition which it has, and the above-mentioned connector, In a state before the above-mentioned archive medium is inserted, it has composition which a position is regulated and is positioned by positioning regulation part of the above-mentioned arm to the above-mentioned loading slot.

[0011]By a positioning regulation part of an arm, a position over a loading slot of a connector in a state before an archive medium is inserted becomes settled with sufficient accuracy.

[0012]An archive medium in which a connector is provided movable and an invention of claim 3 was inserted through a loading slot of a front member is connected to the above-mentioned connector, According to insertion of a subsequent archive medium, the above-mentioned connector in a recording media device moved the above-mentioned front member, It is a portion in which the above-mentioned loading slot has formed an arm prolonged back, and the composition of having in one, the above-mentioned connector is composition guided and moved to an arm to the above-mentioned arm, and the above-mentioned connector is considered as composition positioned to the above-mentioned loading slot by the above-mentioned arm.

[0013]Even if composition with which a connector is positioned to a loading slot by front member and an arm of one does not carry out making common difference of parts severe specially, or stopping dispersion in an assembly severely specially, it makes high accuracy of a position over a loading slot of a connector compared with the former. In order not to use an archive medium, it is not influenced by a dimensional tolerance of an archive medium.

[0014]

[Embodiment of the Invention]First, the recording media device 20 of explanation which becomes one example of this invention with reference to drawing 1 (A) thru/or (G) for convenience is explained roughly. Y1 aims to insert the archive medium 10, and Y2 aims to take out the archive

medium 10. The recording media device 20 is used, for example, being included in electronic equipment, such as a digital camera and a computer. As shown in drawing 10, the archive medium 10 is the core box shape of an approximately quadrangle, and is the composition of having a semiconductor device or a magnetic disk etc. which records information on an inside, and having the connector 11 at the tip of the direction to insert. The composition of having a sequence of a pad terminal in the tip side may be sufficient as the archive medium 10.

[0015]The recording media device 20 is provided with the following.

The front bezel 22 in which the loading slot 21 where the archive medium 10 is inserted is formed.

The archive-medium holder 30 of the box shape holding the archive medium 10 which is supported in the Y1 direction movable and inserted in it.

The connector 40 to which it has provided in the inner part of the Y1 direction end of the archive-medium holder 30, and the above-mentioned connector 11 is connected.

The archive-medium holder locking mechanism 50, the archive-medium holder moving mechanism 60, and the covering mechanism 70.

The covering mechanism 70 is provided with the following.

The 1st lid 71.

The 2nd lid 77.

The flexible flat cable 80 is connected to the Y1 direction side of the connector 40.

[0016]The archive-medium holder locking mechanism 50 is the composition that a lock is canceled, when it locked so that 30 might not be moved in the Y archive-medium holder 1 direction, and the archive medium 10 is inserted until the connector 11 is connected to the connector 40 into the archive-medium holder 30. The archive-medium holder moving mechanism 60 moves the archive-medium holder 30 which moved the archive-medium holder 30 which moved in the Y1 direction and exceeded the position P0 to the position P1, moved to Y 2-way, and exceeded the position P0 to the position P2. The 1st lid 71 plugs up the loading slot 21, when the archive medium 10 is not accommodated. The 2nd lid 77 plugs up the loading slot 21, when the archive medium 10 is accommodated.

[0017]In the state before accommodating the archive medium 10, the recording media device 20 is in the state which shows in drawing 1 (A). The archive-medium holder 30 is located in the position P2, and is locked by the locking mechanism 50. The 1st lid 71 has plugged up the loading slot 21.

[0018]As shown in drawing 1 (A), an operator holds the archive medium 10 by hand, As 11 is inserted through the loading slot 21 towards the connector Y1 side, and the 1st lid 71 is pushed and opened, it inserts into the recording media device 20 and it is shown in drawing 1 (B), the rear end face 12 of the archive medium 10 is pushed with a finger, and the archive medium 10 is pushed in strongly.

[0019]By this operation, first, as shown in drawing 1 (B), the connector 11 is connected to the connector area 42 of the connector 40 which is the other party of the connector 11, Then, the lock of the locking mechanism 50 being canceled and the archive medium 10 pushing the archive-medium holder 30 and the connector 40, it is further inserted into the recording media device 20, and 40 is moved in the Y archive-medium holder 30 and connector 1 direction.

[0020]If the archive-medium holder 30 passes the position P0 as shown in drawing 1 (C), the holder moving mechanism 60 will move the archive-medium holder 30 in the Y1 direction to the position P1, as shown in drawing 1 (D). Since the connector 11 is connected to the connector area 42, it is moved in the 30 Y archive-medium holder 1 direction, and is drawn in the recording media device 20, and, as for the archive medium 10, the whole is accommodated in the recording media device 20. The 2nd lid 77 plugs up the loading slot 21.

[0021]This state is in the state where it was equipped with the archive medium 10 in the recording media device 20, and information is written in the archive medium 10 in this state.

[0022]In completing the writing of information and discharging the archive medium 10, an operator does ejection operation of pushing ejection **. If ejection operation is carried out, as shown in drawing 1 (E), the archive-medium holder 30 will be moved to Y 2-way, the 2nd lid 77 will be pushed and opened by the archive medium 10, and the rear end face 12 of the archive

medium 10 will project from the loading slot 21. If the archive-medium holder 30 passes the position P0, the holder moving mechanism 60 will move the archive-medium holder 30 to Y 2-way to the position P2, as shown in drawing 1 (F).

[0023]In this state, as shown in drawing 1 (G), an operator holds by hand the portion 13 projected from the loading slot 21 among the archive media 10, and lengthens it to Y 2-way strongly. The connector 11 is removed from the connector area 42 by this, and the archive medium 10 is taken out from the recording media device 20. If the archive medium 10 is taken out from the recording media device 20, as shown in drawing 1 (A), the 1st lid 71 will plug up the loading slot 21.

[0024]Next, operation of a recording media device is explained about the recording media device 20 which becomes one example of this invention, referring to drawing 1 (A) thru/or (F).

[0025]The perspective view which looked at the recording media device 20 which drawing 2 was piled up and has been docked from the upper part by the side of the front bezel 22, The perspective view as which drawing 3 regarded the recording media device 20 from the upper part by the side of the back, the perspective view as which drawing 4 regarded the recording media device 20 from the lower part by the side of the back, The top view of the recording media device 20 which drawing 5 (A) was piled up and has been docked, the sectional view where drawing 5 (B) meets a B-B line among drawing 5 (A), and drawing 5 (C) are bottom views. As for X1-X2, a depth direction and Z1-Z2 are height directions the cross direction and Y1-Y2. The same numerals are given to the component part shown in drawing 1 (A) thru/or (G), and a corresponding portion among each figure.

[0026]The recording media device 20-1 and 20-2 are in the state where it was piled up and docked. The upper recording media device 20-1 is in the state where it is equipped with the archive medium 10 in the recording media device 20, and the lower recording media device 20-2 is in the state where it is not equipped with the archive medium 10 in the recording media device 20.

[0027]The recording media device 20 has the base member 100, the front member 110, the archive-medium holder 30, the connector 40, the archive-medium holder locking mechanism 50, the archive-medium holder moving mechanism 60, the covering mechanism 70, the ejecting mechanism 120, and cover member 130 grade.

[0028]As shown in drawing 2 and drawing 4, the base member 100 is allotted to Z2 side, and supports the front member 110, the locking mechanism 50, the holder moving mechanism 60, the covering mechanism 70, and ejecting mechanism 120 grade. As shown in drawing 3, to the base member 100 on the both sides of the cross direction by the side of Y2, and both sides of the cross direction by the side of Y1. As the four legs 101 and the holder part 102 are formed, and the recording media device 20 is used alone and also it is shown in drawing 2 and drawing 5 (B), For example, the leg 101 of the upper recording media device 20-1 is fixed to the holder part 102 of the lower recording media device 20-2, and two recording media device 20-1,20-2 is used also in the state where it was piled up, connected and docked.

[0029]it is shown in drawing 2 and drawing 5 (A) and (B) -- as -- the cover member 130 -- the front bezel 22 -- it is arranged immediately at Y1 side, the X1-X2 side is fixed to the base member 100, and the archive-medium holder 30 upper part is covered. The space 131 for opening and accommodating the 1st level lid 71 between the cover member 130 and the upper surface 14 of the archive medium 10 with which it was equipped, is formed.

[0030]As shown in drawing 3, the front member 110 is provided with the following. The front bezel 22 in which it has fixed to the 100 base member Y2 side, and the loading slot 21 is formed.

The two arms 111 and 112 prolonged in the Y1 direction from the position of the both sides of the loading slot 21 among the front bezels 22.

[0031]As shown in drawing 3 and drawing 5 (B), the archive-medium holder 30 has the size shape corresponding to the archive medium 10, is located above the base member 100, is supported by the arms 111 and 112, and is movable in Y1 direction along with the arms 111 and 112. This archive-medium holder 30 holds the inserted ten archive-medium Y1 side. The

connector 40 is fixed to 30Yarchive-medium holder 1 side edge toward Y 2-way. The connector 40 has another connector area 41 in the Y1 side. The contact terminal of the connector 40 is prolonged even in the connector area 41. As shown in drawing 3, the connector of the end of the flexible flat cable 80 is connected to the connector area 41. The flexible flat cable 80 is guided through the hole 104 of the wall 103 by the side of the 100 base memberY1 which has risen.

[0032]The lock arm 52 currently supported by the upper surface of the archive-medium holder 30 rotatable at the axis 51 as the archive-medium holder locking mechanism 50 is shown in drawing 3. It is the composition of having the lock plate 53 fixed on the base member 100, the lock pin 54 on the lock arm 52, and a torsion coil spring. Usually, the lock pin 54 is stopped by the lock plate 53, and 30 is located in the archive-medium holderP2, and it is locked so that it may not move in the Y1 direction. Although the archive medium 10 is pushed in strongly, the position of the connector 40 is being fixed and the connector 11 is certainly connected to the connector area 42. If the archive medium 10 is inserted until the connector 11 is connected to the connector area 42, The front end surface 17 of 10Yarchive-medium 1 direction pushes the lock arm 52, and makes it rotate, the lock pin 54 separates from the lock plate 53, a lock is canceled, and they are moved in the Y1 direction, the archive-medium holder 30 and the connector 40 being pushed by the archive medium 10 pushed in.

[0033]As shown in drawing 4 and drawing 5 (C), the archive-medium holder moving mechanism 60, It is the composition which uses the torsion coil spring 61, has fitted into the pin 62 by which the arm 61a of 1 is planted on the undersurface of the base member 100, and has fitted into the pin 63 by which another arm 61b is planted on the undersurface of the holder 30. If 30 is moved in theYarchive-medium holder located in P2 1 direction, If the difference angle beta of the arm 61a of the torsion coil spring 61 and the arm 61b is narrowed, it becomes the narrowest at P0 and P0 is passed, the above-mentioned difference angle will come to become large, and the archive-medium holder 30 will be moved in the Y1 direction by the spring power of the torsion coil spring 61 to P1. If the archive-medium holder 30 located in P1 is moved to Y 2-way, If the difference angle of the arm 61a of the torsion coil spring 61 and the arm 61b is narrowed, it becomes the narrowest at P0 and P0 is passed, the above-mentioned difference angle will come to become large, and the archive-medium holder 30 will be moved to Y 2-way by the spring power of the torsion coil spring 61 to P2 of origin.

[0034]As shown in drawing 5 (B), the covering mechanism 70 is provided with the following. The 1st lid 71 that has closed the loading slot 21 when the archive medium 10 is not accommodated.

The 2nd lid 77 that has closed the loading slot 21 when the archive medium 10 is accommodated.

[0035]The ejecting mechanism 120 is provided with the following.

The rod 121 currently supported by the Y1-Y 2-way movable at the 100 base member X1 side as shown in drawing 2.

Ejection ** 122 which has fixed to 121Yrod 2 end, and has projected from the opening 113 of the front bezel 22.

The eject lever 124 fixed to the shaft member 123 fixed to 100Ybase member 1 one end.

The ejection pole 125 of the end of X 2-way of the eject lever 124.

The end of 121Yrod 1 direction is connected with the end of 124Xeject lever 1 direction. The ejection pole 125 has countered with the end of 30Yholder 1 direction. In the state where it is not equipped with the archive medium 10 in the recording media device 20. Like the lower recording media device 20, ejection ** 122 is dented in the opening 113, and has projected ejection ** 122 from the opening 113 like the upper recording media device 20 in the state where it is equipped with the archive medium 10 in the recording media device 20.

[0036]When ejection ** 122 is pushed, the eject lever 124 rotates counterclockwise, and the ejection pole 125 pushes the holder 30 and makes it move to Y 2-way.

[0037]In accommodating the archive medium 10, an operator performs operation which is inserted into the loading slot 21 which holds the archive medium 10 by hand, and whose indicator 77a of "MEDIA OUT" can be seen, and is pushed in strongly. By this operation, the connector 11

is connected to the connector 40, the lock of the locking mechanism 50 is canceled, then the holder moving mechanism 60 operates, and as the archive medium 10 shows the recording media device 20-1 of the drawing 5 (B) upper part, it is drawn in an inside and accommodated.

[0038]In completing the writing of information and discharging the archive medium 10, an operator pushes ejection ** 122. The ejecting mechanism 120 operates, the holder 30 is moved to Y 2-way by this operation, and from the middle, the holder moving mechanism 60 operates, the holder 30 is moved by the holder moving mechanism 60, and as shown in drawing 3, the rear end part 12 of the archive medium 10 projects from the loading slot 21.

[0039]Next, the connector positioning mechanism 200 which determines the position of the connector 40 which makes the important section of this invention is explained.

[0040]Drawing 6 is in a state, i.e., the state before inserting the archive medium 10, when 30 is located in the holderP2. Drawing 7 is in a state, i.e., a state when equipped with the archive medium 10, when 30 is located in the holderP1. Drawing 8 and drawing 9 show positioning and physical relationship over the loading slot 21 of the connector 40. The state of positioning when the connector 40 has fitted in with the guide rails 111 and 112 before drawing 8 (C) inserts the archive medium 10 namely, The connector 11 is connected to the connector area 42, and the state of positioning just before drawing 8 (E) inserts the archive medium 10 and the connector 11 is connected to the connector area 42, and drawing 9 (B) show the state of positioning in the state where the connector 40 separated from the arms 111 and 112.

[0041]This connector positioning mechanism 200 is the composition of deciding the position of the connector 40 using the archive medium 10.

[0042]As shown in drawing 10, the archive medium 10 has the guide grooves 18 and 19 which have extended on the side on either side at the longitudinal direction, and it has the connector 11 at the tip of the path of insertion, and the rear end face 12 is arc shape.

[0043]As shown in drawing 6 (C), the front member 110 is provided with the following.

The front bezel 22 in which it is forming parts of a synthetic resin and the loading slot 21 is formed.

The two arms 111 and 112 prolonged in the Y1 direction from the position of the both sides of the loading slot 21 among the front bezels 22.

The size of the loading slot 21 is a size corresponding to the archive medium 10, and is not large specially.

[0044]As shown in drawing 9 (A), the arm 111 has the guide rail 111a prolonged in the Y1-Y 2-way in an inside field, and has the fork part 111b for positioning at Y1 end in it. The guide rail 111a is formed on the rest 111c. The fork part 111b consists of the two finger parts 111b1, 111b2 and the crevice 111b3 in the meantime. The arm 112 is also the same shape as the arm 111, and it has the guide rail 112a and the fork part 112b. The guide rails 111a and 112a constitute a guide part. The fork parts 111b and 112b constitute a positioning regulation part.

[0045]Here, since the arms 111 and 112 are the front bezel 22 and one, their accuracy of the position over the loading slot 21 of the guide rails 111a and 112a is high, and their accuracy of the position over the loading slot 21 of the fork parts 111b and 112b is high.

[0046]As shown in drawing 7, the archive-medium holder 30 is provided with the following.

It is the size corresponding to the archive medium 10, the field and the upper surface by the side of Y2 of a box have the shape used as the opening, and they are the bottom plate part 32 and the side plate parts 31 and 33 of both sides.

The Kamiita part 34 by the side of Y1.

As shown in drawing 6 (B) and drawing 7 (B), the archive-medium holder 30, It is movable in Y1 direction, having stopped the hooking portions 31a and 33a which bend the portion by the side of Z1 by the side of the side plate part 31 and Y2 [33] by having wrapped 112 from Z2 side with the arm 111, and have been formed in the inverted-U character to the arms 111 and 112, respectively, and being supported by the arms 111 and 112. The shaft member 71a of the 1st lid 71 is constructed across horizontally among the hooking portions 31a and 33a. The end lifting part 32a which the bottom 15 of the archive medium 10 hits is formed in the bottom plate part 32.

[0047]The connector 40 is provided with the following as shown in drawing 9 (A).

The connector area 42 which has turned to Y 2-way.

The connector area 41 which has turned to Y 2-way.

The arm 43 which came out from the side by the side of X2, made the shape of L type, and has been prolonged in Y 2-way.

The arm 44 which came out from the side by the side of X1, made the shape of L type, and has been prolonged in Y 2-way.

The guide rails 45 and 46 prolonged in the Y1-Y 2-way, respectively are formed in the field inside the arms 43 and 44. The contact terminal of the connector 40 is prolonged even from the connector area 42 to the connector area 41. The connectors 40 are forming parts of a synthetic resin, the connector areas 41 and 42 and the arms 43 and 44 are one, and their accuracy of the position over the connector area 42 of the arms 43 and 44 is high, and their accuracy of the position over the connector area 42 of the guide rails 45 and 46 is high.

[0048]The connector 40 is fixed to the upper surface of 32Ybottom plate part 1 side edge of the archive-medium holder 30.

[0049]Here, the front member 110, the connector 40, and the archive-medium holder 30 are the usual dimensional tolerances, and the accuracy of the attachment to the archive-medium holder 30 of the connector 40 is also the usual common difference.

[0050]Next, positioning of the Z1-Z 2-way to the loading slot 21 of the connector area 42 is explained.

[0051]Here, Z21 is a position of the Z1-Z 2-way of the loading slot 21. Z42-1, Z42-2, and Z42-3 is a position of the Z1-Z 2-way of the connector area 42.

(1) The state before inserting the archive medium 10 (refer to drawing 6 (A) and drawing 8 (A), (B), (C))

30 is located in the archive-medium holderP2, and as shown in drawing 8 (A) and (B), the arms 43 and 44 have fitted into the fork parts 111b and 112b, respectively. When the arms 43 and 44 have fitted into the fork parts 111b and 112b, respectively, as shown in drawing 8 (C), the position of the Z1-Z 2-way to the loading slot 21 of the connector area 42 is decided to be Z42-1.

[0052]The accuracy of the position over the loading slot 21 of the fork parts 111b and 112b is high here, the accuracy of the position over the connector area 42 of the arms 43 and 44 accumulates highly, and position Z42-1 of the connector area 42 is located in the position corresponding to [abbreviated] the position Z21 of the loading slot 21.

[0053]The guide rails 45 and 46 have aligned with the guide rails 111a and 112a, respectively.

(2) A state just before inserting the archive medium 10 and connecting the connector 11 to the connector area 42 (refer to drawing 6 (A), drawing 8 (A), (D), (E), and (F))

The archive medium 10 inserted through the loading slot 21 is inserted the guide grooves 18 and 19 fitting into the guide rails 111a and 112a, respectively, as shown in drawing 8 (D).

[0054]If the archive medium 10 is inserted further, as shown in drawing 8 (E), a near portion will fit into the guide rails 45 and 46 among [Y1] the guide grooves 18 and 19. Therefore, the guide grooves 18 and 19 of the archive medium 10 change the guide rails 45 and 46 into the state where it aligned with the guide rails 111a and 112a, and the connector area 42. As shown in drawing 8 (F), it is positioned by position Z42-2 via the archive medium 10 on the basis of the guide rails 111a and 112a.

[0055]Therefore, even if it does not do the work which moves the archive medium 10 suitably and discovers the connector area 42, the connection with the connector area 42 of the connector 11 is smoothly made only by pushing in the archive medium 10.

[0056]The archive medium 10 cuts the bottom 15, and is pushed up in the aZlifting part 321 direction, and play of the Z1-Z 2-way of the guide grooves 18 and 19 and the guide rails 111a and 112a is brought near by it in the Z1 direction. Therefore, position Z42-2 of the connector area 42 did not receive the influence of play of the Z1-Z 2-way of the guide grooves 18 and 19 and the guide rails 111a and 112a, but it was decided with sufficient accuracy.

(3) The state which was moved in the 40Yconnector 1 direction and from which it separated from the arms 111 and 112 (refer to drawing 7 (A) and drawing 9 (A) thru/or (D))

The connector area 42 is connected to the connector 11 by the side of an archive medium, and,

as for the position of the connector area 42, Z42-3 is determined by the archive medium 10.

[0057]As shown in drawing 9 (B), the guide grooves 18 and 19 of the archive medium 10 have fitted into the guide rails 111a and 112a, and the position over the loading slot 21 of the archive medium 10 is determined with sufficient accuracy.

[0058]As shown in drawing 9 (C), the guide rails 45 and 46 have fitted into the guide grooves 18 and 19, and the position over the archive medium 10 of the connector 40 is determined.

[0059]Therefore, it is continued by positioning it position Z42-3 corresponding to the loading slot 21 even after the connector 40 separates from the connector area 42 from the arms 111 and 112. For this reason, when ejection operation is carried out and the archive medium 10 is discharged, the arms 43 and 44 of the connector 40 fit into the fork parts 111b and 112b smoothly.

[0060]When the archive medium 10 is the composition of having the guide rail parts 140 and 141 of a convex on the side at drawing 11 as the numerals 10A show, The arms 111A and 112A of the front member 110 are the composition of having the guide groove 150,151, respectively, what is necessary is just to also consider the arms 43A and 44A of the connector 40 as the composition which has the guide groove 160,161, respectively, and the same effect as the aforementioned composition is acquired.

[0061]Next, the connector positioning mechanism 200B which becomes another example which determines the position of the connector 40 is explained.

[0062]Drawing 12 decomposes and shows the front member 110B and the holder 30B. Drawing 13 shows the state where the holder 30B has fitted into the front member 110B.

[0063]This connector positioning mechanism 200B is the composition of not using the archive medium 10B for positioning. The archive medium 10B has neither a guide groove nor a guide rail on the side on either side.

[0064]The front member 110B is provided with the following.

The front bezel 22B in which the loading slot 21B is formed.

The two arms 111B and 112B prolonged in the Y1 direction from the position of the both sides of the loading slot 21B among the front bezels 22B.

The guide rail 170,171 is formed inside the arms 111B and 112B.

[0065]The archive-medium holder 30B is approximately box-like [which has the bottom plate part 180 and the back plate part 183 by the side of the side plate part 181,182 and Y1 of both sides], and the connector 40B is fixed to the back plate part 183, and it is turned to and formed in the inside in Y 2-way. The guide groove 184,185 is formed in the field of the outside of the side plate part 181,182. As shown in drawing 13 (A) and (C), the holder 30B fitted the guide groove 184,185 into the guide rail 170,171, respectively, was supported by the arms 111B and 112B, is settled among the arms 111B and 112B, and is movable to a Y1-Y 2-way.

[0066]As shown in drawing 13 (B), even if the position of the connector 40B is located in which position on a Y1-Y 2-way about a Z1-Z 2-way top, it is decided with the guide rail 170,171 of the arms 111B and 112B, and is provided in Z40B. This position Z40B is a position corresponding to the position Z21B of the loading slot 21B. The influence of the dimensional tolerance of the archive medium 10B does not receive the position Z40B, either.

[0067]Therefore, the connection with the connector 40B of the connector 11B at a tip is smoothly made only by pushing in the archive medium 10B.

[0068]Devise the shape of the above-mentioned connector 40B, and the holder 30B is lost, The connector 40B itself fits into the guide rail 170,171, it is supported by the arms 111B and 112B, is settled among the arms 111B and 112B, and it may constitute so that it may be movable to a Y1-Y 2-way.

[Translation done.]

* NOTICES *

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1.This document has been translated by computer. So the translation may not reflect the original precisely.

2.*** shows the word which can not be translated.

3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]It is a figure showing the outline of the recording media device which becomes one example of this invention.

[Drawing 2]It is the perspective view which looked at the recording media device which is piled up and becomes one example of docked this invention from the upper part by the side of a front bezel.

[Drawing 3]It is the perspective view which looked at the recording media device from the upper part by the side of the back.

[Drawing 4]It is the perspective view which looked at the recording media device from the lower part by the side of the back.

[Drawing 5]It is a figure showing a recording media device. The sectional view where (A) meets a top view and (B) meets a B-B line among (A), and (C) are bottom views.

[Drawing 6]It is a figure showing a state when the holder is located in P2. (B) is a sectional view which meets a B-B line among (A).

[Drawing 7]It is a figure showing a state when the holder is located in P1.

[Drawing 8]It is a figure showing the state of each part of the connector positioning mechanism in the state of drawing 6, and this mechanism.

[Drawing 9]It is a figure showing the state of each part of the connector positioning mechanism in the state of drawing 7, and this mechanism.

[Drawing 10]It is a figure showing an archive medium.

[Drawing 11]It is a figure showing the modification of fitting with an archive medium and an arm.

[Drawing 12]It is a figure decomposing and showing the connector positioning mechanism which becomes another example.

[Drawing 13]It is a figure showing the state before archive-medium insertion of the connector positioning mechanism of drawing 12.

[Drawing 14]It is a figure showing the outline composition of the conventional recording media device.

[Description of Notations]

10, 10A, 10B archive medium

11 Connector

18, 19 guide grooves

20 Recording media device

21 21B Loading slot

22 Front bezel

30, a 180 archive-medium holder

31 Side plate part

40 Connector

42 Connector area

43 and 44 Arm

45 and 46 Guide rail

50 Archive-medium holder locking mechanism

60 Archive-medium holder moving mechanism
70 Covering mechanism
71 The 1st lid
75 Lid assembly object
76 Arm plate member
77 The 2nd lid
100 Base member
106 Flange
110 110B Front member
111,112, 111B, and 112B Arm
111a, 112a, and 170,171 Guide rail
111b, a 112b fork part
120 Ejecting mechanism
140,141 guide rail parts
150,151, 160, 161 guide grooves
170,171 Guide rail
184,185 guide grooves
200,200B Connector positioning mechanism

[Translation done.]

* NOTICES *

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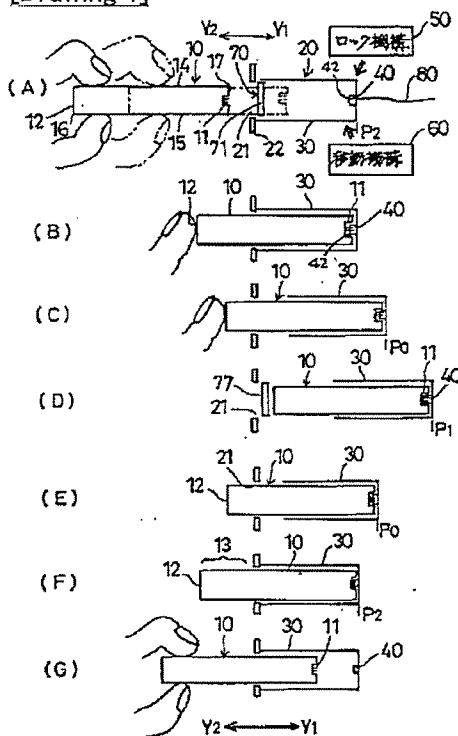
1.This document has been translated by computer. So the translation may not reflect the original precisely.

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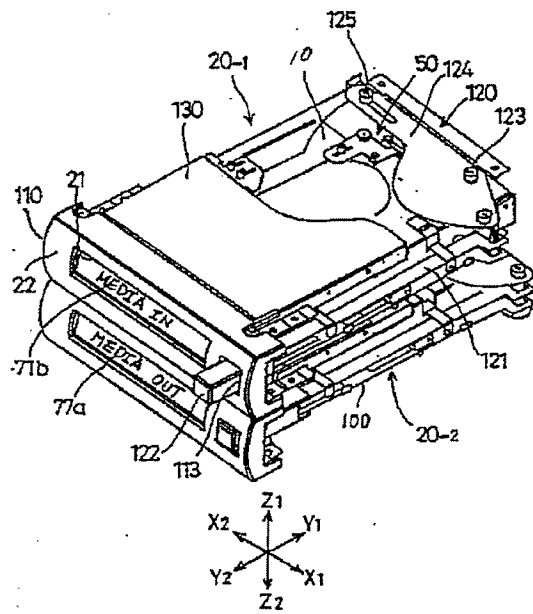
3.In the drawings, any words are not translated.

DRAWINGS

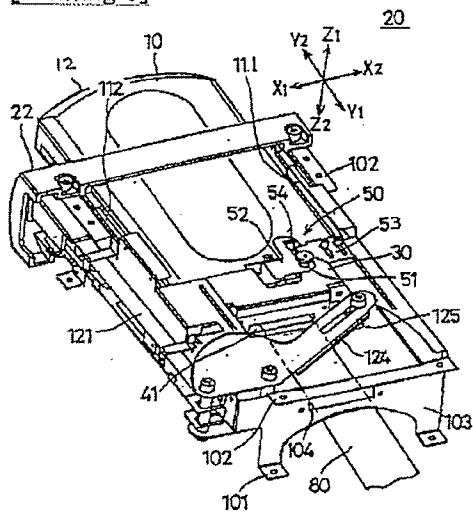
[Drawing 1]



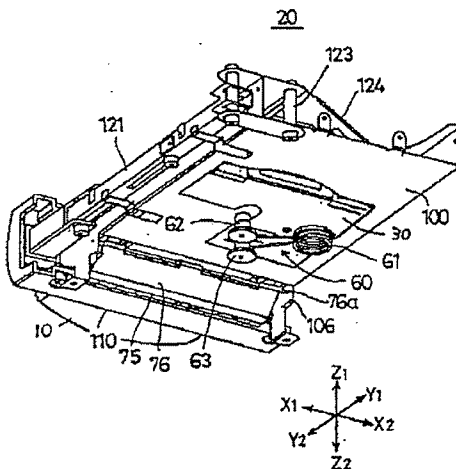
[Drawing 2]



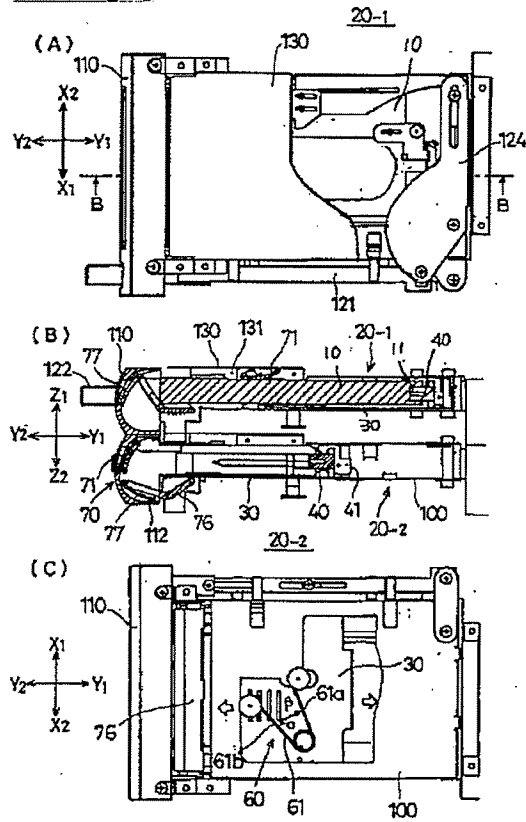
[Drawing 3]



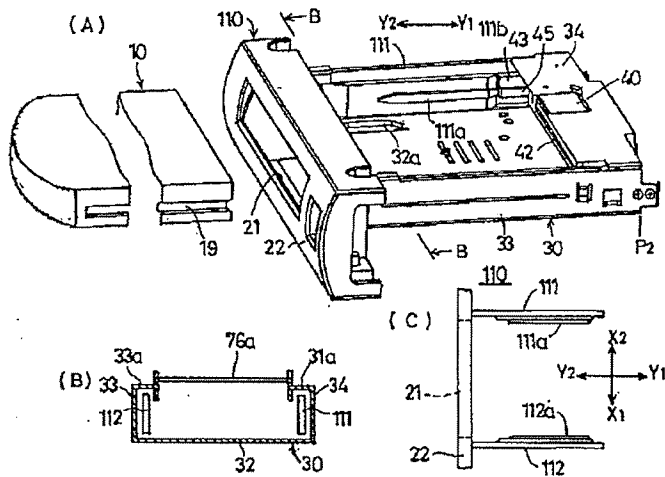
[Drawing 4]



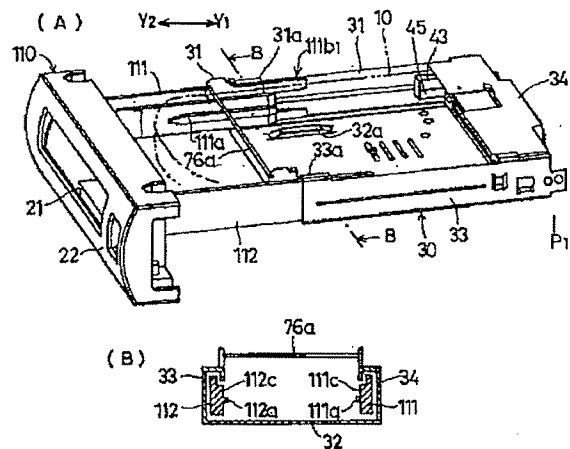
[Drawing 5]



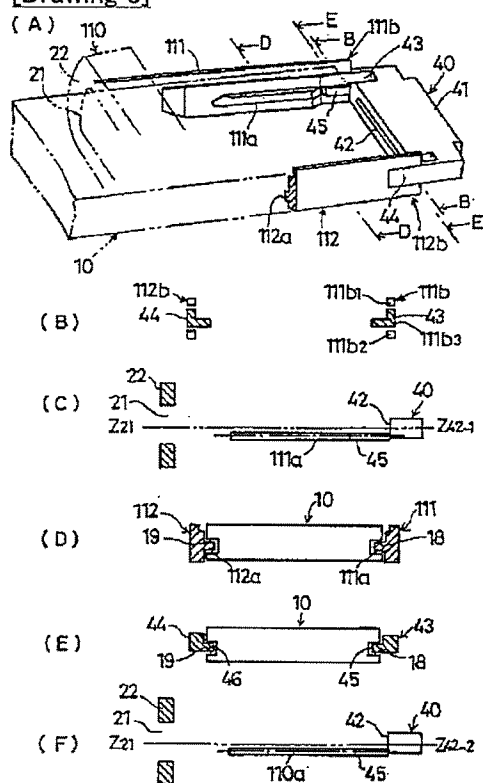
[Drawing 6]



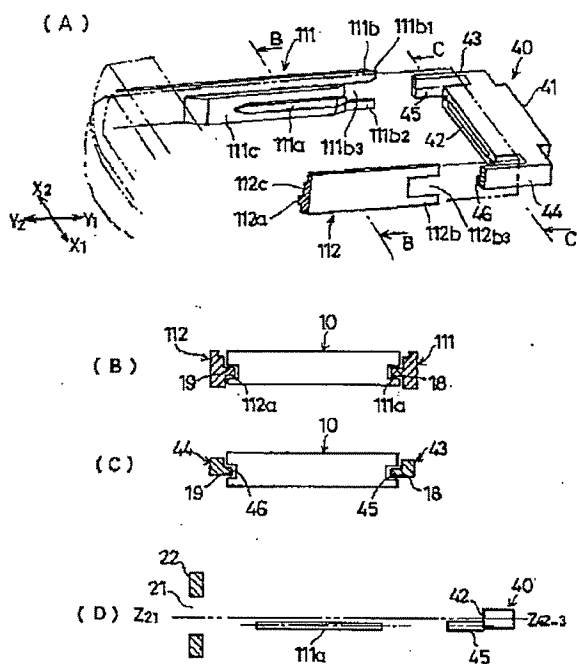
[Drawing 7]



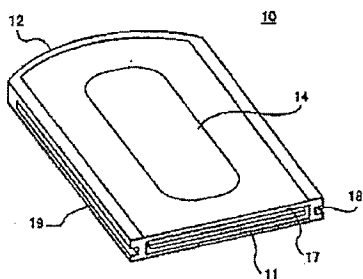
[Drawing 8]



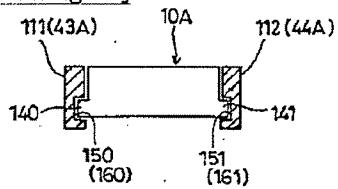
[Drawing 9]



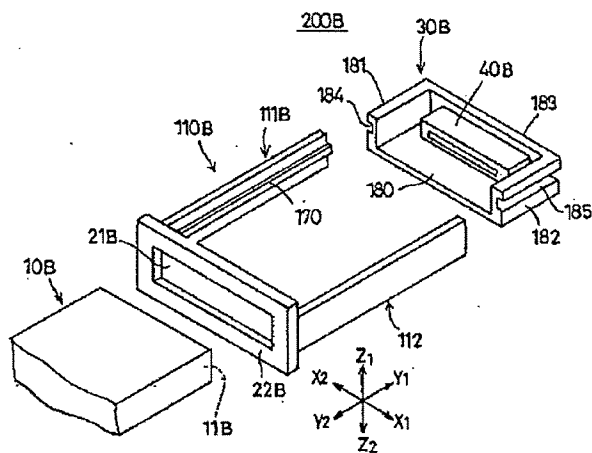
[Drawing 10]



[Drawing 11]

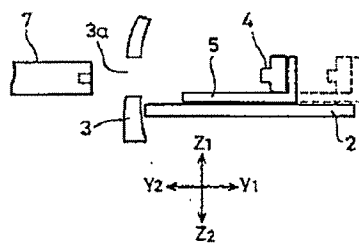


[Drawing 12]

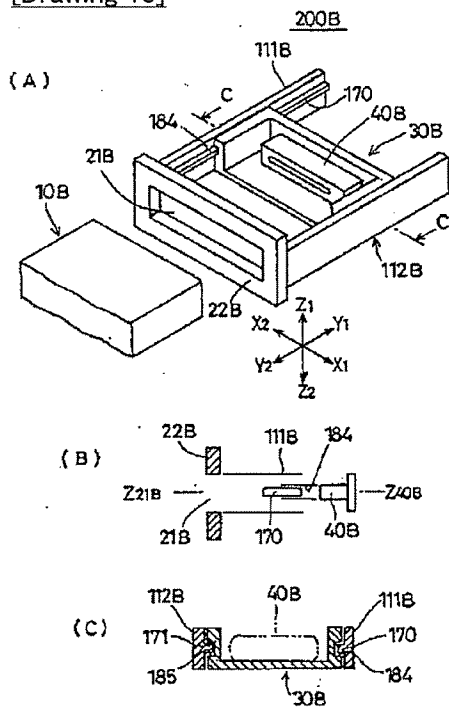


[Drawing 14]

1



[Drawing 13]



[Translation done.]

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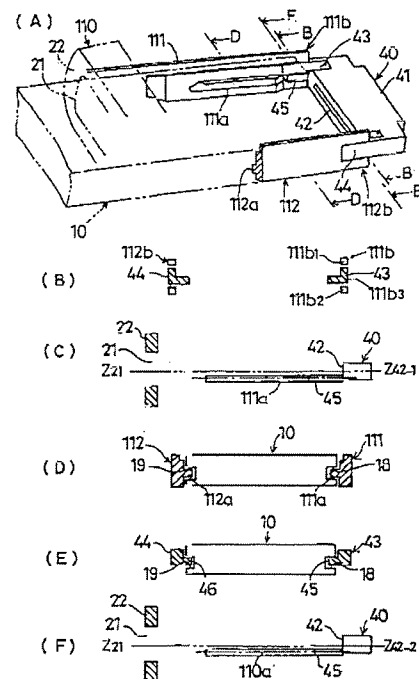
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(54)【発明の名称】 記録メディア装置

(57)【要約】

【課題】 本発明はコネクタが移動可能に設けてある記録メディア装置に関し、コネクタの挿入口に対する位置の精度を向上させることを課題とする。

【解決手段】 フロント部材110は、腕部111、112をフロントベゼル22と一体に有する。腕部111、112は、挿入された記録メディア10の側面のガイド溝18、19をガイドするガイドレール111a、112aを有する。コネクタ40は、腕部43、44を有する。腕部43、44はガイドレール45、46を有する。挿入口21を通った記録メディア10は、ガイド溝18、19をガイドレール111a、112aに嵌合されつつ挿入され、更には、ガイド溝18、19がガイドレール45、46に嵌合される。よって、コネクタ40は、ガイドレール111a、112aによって位置が定まった記録メディア10を介して、挿入口21に対して位置決めされる。



【特許請求の範囲】

【請求項1】 コネクタが移動可能に設けてあり、フロント部材の挿入口を通して挿入された記録メディアが上記コネクタに接続され、その後の記録メディアの挿入に応じて上記コネクタが移動される記録メディア装置において、

上記フロント部材は、挿入された記録メディアの側面をガイドするガイド部を有する腕部を、上記挿入口が形成してある部分と一体的に有する構成であり、

上記コネクタは、挿入された記録メディアの側面と嵌合する嵌合部を有する構成であり、

上記コネクタは、上記腕部のガイド部によって案内されつつ挿入された記録メディアを介して上記挿入口に対して位置決めされる構成としたことを特徴とする記録メディア装置。

【請求項2】 請求項1に記載の記録メディア装置において、

上記腕部は、上記記録メディアが挿入される前の状態で、上記コネクタの一部が嵌合されて該コネクタの位置を規制する位置規制部を有する構成であり、

上記コネクタは、上記記録メディアが挿入される前の状態では、上記腕部の位置規制部によって位置を規制されて、上記挿入口に対して位置決めされる構成としたことを特徴とする記録メディア装置。

【請求項3】 コネクタが移動可能に設けてあり、フロント部材の挿入口を通して挿入された記録メディアが上記コネクタに接続され、その後の記録メディアの挿入に応じて上記コネクタが移動される記録メディア装置において、

上記フロント部材は、後方に延びている腕部を、上記挿入口が形成してある部分と一体的に有する構成であり、上記コネクタは、上記腕部に対して腕部にガイドされて移動される構成であり、

上記コネクタは、上記腕部によって、上記挿入口に対して位置決めされる構成としたことを特徴とする記録メディア装置。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は記録メディア装置に係り、特に記録メディアがフロントベゼルの挿入口を通して挿入されてコネクタと接続される構成の記録メディア装置においてコネクタの挿入口に対する位置を決める機構に関する。

【0002】

【従来の技術】図14は従来の記録メディア装置1の概略構成を示す。記録メディア装置1は、記録メディアがフロントベゼルの挿入口を通して挿入されてコネクタと接続され、その後の記録メディアの挿入によってコネクタが後方に移動される構成であり、ベース部材2と、ベース部材2に取り付けてあるフロントベゼル3と、コネ

クタ4が取り付けられてあり、ベース部材2上に支持されている記録メディアホルダ5とを有する。コネクタ4は、フロントベゼル3の挿入口3aと同じ高さの位置に配置してある。記録メディア7は、フロントベゼル3の挿入口3aを通してY1方向に挿入されて、コネクタ4と接続される。

【0003】フロントベゼル3の挿入口3aを通して挿入された記録メディア7がコネクタ4と円滑に接続されるためには、コネクタ4の位置が、フロントベゼル3の挿入口3aと同じ高さの位置に精度よく位置していることが必要である。

【0004】

【発明が解決しようとする課題】上記の記録メディア装置1においては、Z1-Z2方向上のコネクタ4の挿入口3aに対する位置は、ベース部材2の寸法公差、フロントベゼル3の寸法公差、記録メディアホルダ5の寸法公差、フロントベゼル3のベース部材2への取り付けの精度、ホルダ5のベース部材2上への取り付けの精度等によって影響を受ける。即ち、コネクタ4の挿入口3aに対する位置に影響を及ぼす要因が多く存在していた。よって、コネクタ4の挿入口3aに対する位置を精度良く決めることが難しかった。

【0005】このため、各部品の精度及び組立ての精度によっては、フロントベゼル3の挿入口3aを通して挿入された記録メディア7がコネクタ4と円滑に接続され難いことが起きる虞れがあった。また、Y2方向へのイジェクト時に記録メディア7がフロントベゼル3の裏面にぶつかってしまうことが起きる虞れもあった。

【0006】コネクタ4の挿入口3aに対する位置の精度を高くするには、ベース部材2の寸法公差、フロントベゼル3の寸法公差、記録メディアホルダ5の寸法公差、フロントベゼル3のベース部材2への取り付けの精度、ホルダ5のベース部材2上への取り付けの精度を特別に厳しくする必要があり、このようにすると記録メディア装置1の製造コストが相当に高くなってしまいう問題がある。

【0007】そこで、本発明は、上記課題を解決した記録メディア装置を提供することを目的とする。

【0008】

【課題を解決するための手段】請求項1の発明は、コネクタが移動可能に設けてあり、フロント部材の挿入口を通して挿入された記録メディアが上記コネクタに接続され、その後の記録メディアの挿入に応じて上記コネクタが移動される記録メディア装置において、上記フロント部材は、挿入された記録メディアの側面をガイドするガイド部を有する腕部を、上記挿入口が形成してある部分と一体的に有する構成であり、上記コネクタは、挿入された記録メディアの側面と嵌合する嵌合部を有する構成であり、上記コネクタは、上記腕部のガイド部によって案内されつつ挿入された記録メディアを介して上記挿入

口に対して位置決めされる構成としたものである。

【0009】コネクタがフロント部材と一体の腕部のガイド部によって案内されつつ挿入された記録メディアを介して挿入口に対して位置決めされる構成は、部品の公差を特別に厳しくしたり、組立てのばらつきを特別に厳しく抑えたりすることをしなくても、コネクタの挿入口に対する位置の精度を従来に比べて高くする。

【0010】請求項2の発明は、請求項1に記載の記録メディア装置において、上記腕部は、上記記録メディアが挿入される前の状態で、上記コネクタの一部が嵌合されて該コネクタの位置を規制する位置規制部を有する構成であり、上記コネクタは、上記記録メディアが挿入される前の状態では、上記腕部の位置規制部によって位置を規制されて、上記挿入口に対して位置決めされる構成としたものである。

【0011】腕部の位置規制部によって、記録メディアが挿入される前の状態における、コネクタの挿入口に対する位置が精度良く定まる。

【0012】請求項3の発明は、コネクタが移動可能に設けてあり、フロント部材の挿入口を通して挿入された記録メディアが上記コネクタに接続され、その後の記録メディアの挿入に応じて上記コネクタが移動される記録メディア装置において、上記フロント部材は、後方に延びている腕部を、上記挿入口が形成してある部分と一体的に有する構成であり、上記コネクタは、上記腕部に対して腕部にガイドされて移動される構成であり、上記コネクタは、上記腕部によって、上記挿入口に対して位置決めされる構成としたものである。

【0013】コネクタがフロント部材と一体の腕部によって挿入口に対して位置決めされる構成は、部品の公差を特別に厳しくしたり、組立てのばらつきを特別に厳しく抑えたりすることをしなくても、コネクタの挿入口に対する位置の精度を従来に比べて高くする。記録メディアを利用しないため、記録メディアの寸法公差の影響も受けない。

【0014】

【発明の実施の形態】先ず、説明の便宜上、図1(A)乃至(G)を参照して、本発明の一実施例になる記録メディア装置20について概略的に説明する。Y1が記録メディア10を挿入する方向であり、Y2が記録メディア10を取り出す方向である。記録メディア装置20は、例えばデジタルカメラ、コンピュータ等の電子機器に組み込まれて使用される。記録メディア10は、図10に示すように、略四角形の箱型形状であり、内部に情報を記録する半導体素子又は磁気ディスク等を有しており、挿入する方向の先端にコネクタ11を有する構成である。記録メディア10は、先端側にパッド端子の列を有する構成でもよい。

【0015】記録メディア装置20は、記録メディア10が挿入される挿入口21が形成してあるフロントベゼ

ル22と、Y1方向に移動可能に支持されており、挿入された記録メディア10を保持する箱形状の記録メディアホルダ30と、記録メディアホルダ30のY1方向端の奥に設けてあり、上記コネクタ11が接続されるコネクタ40と、記録メディアホルダロック機構50と、記録メディアホルダ移動機構60と、蓋機構70とを有する。蓋機構70は、第1の蓋71と、第2の蓋77とを有する。コネクタ40のY1方向側には、フレキシブルフラットケーブル80が接続してある。

【0016】記録メディアホルダロック機構50は、記録メディアホルダ30をY1方向に移動しないようにロックしており、記録メディア10が記録メディアホルダ30内にコネクタ11がコネクタ40に接続されるまで挿入されたときにロックが解除される構成である。記録メディアホルダ移動機構60は、Y1方向に移動して位置P0を越えた記録メディアホルダ30を位置P1まで移動させ、Y2方向に移動して位置P0を越えた記録メディアホルダ30を位置P2まで移動させる。第1の蓋71は、記録メディア10が収容されていないときに、挿入口21を塞ぐ。第2の蓋77は、記録メディア10が収容されているときに、挿入口21を塞ぐ。

【0017】記録メディア10を収容する前の状態では、記録メディア装置20は、図1(A)に示す状態にある。記録メディアホルダ30は位置P2に位置しており、ロック機構50によってロックされている。第1の蓋71が挿入口21を塞いでいる。

【0018】図1(A)に示すように、操作者は記録メディア10を手で掴んで、コネクタ11をY1側に向けて、挿入口21を通して挿入し、第1の蓋71を押して開いて、記録メディア装置20内に挿入し、図1(B)に示すように、指で記録メディア10の後端面12を押して、記録メディア10を強く押し込む。

【0019】この操作によって、先ず、図1(B)に示すように、コネクタ11がコネクタ11の相手方であるコネクタ40のコネクタ部42に接続され、続いて、ロック機構50のロックが解除され、記録メディア10が記録メディアホルダ30及びコネクタ40を押しつつ、記録メディア装置20内に更に挿入され、記録メディアホルダ30及びコネクタ40がY1方向に移動される。

【0020】図1(C)に示すように記録メディアホルダ30が位置P0を通り過ぎると、ホルダ移動機構60が記録メディアホルダ30を、図1(D)に示すようにY1方向に位置P1まで移動させる。コネクタ11がコネクタ部42に接続されているため、記録メディア10は記録メディアホルダ30と共にY1方向に移動されて記録メディア装置20内に引き込まれ、全体が記録メディア装置20内に収容される。また、第2の蓋77が挿入口21を塞ぐ。

【0021】この状態が、記録メディア10が記録メディア装置20内に装着された状態であり、この状態で、

記録メディア10に情報が書き込まれる。

【0022】情報の書き込みが終了して記録メディア10を排出する場合には、操作者はイジェクト鉤を押すイジェクト操作をする。イジェクト操作をすると、図1(E)に示すように、記録メディアホルダ30がY2方向に移動され、第2の蓋77が記録メディア10によって押されて開かれ、記録メディア10の後端面12が挿入口21から突き出す。記録メディアホルダ30が位置P0を通り過ぎると、ホルダ移動機構60が記録メディアホルダ30を、図1(F)に示すようにY2方向に位置P2まで移動させる。

【0023】この状態で、操作者は、図1(G)に示すように、記録メディア10のうち挿入口21から突き出している部分13を手で掴んで、Y2方向に強く引く。これによって、コネクタ11がコネクタ部42から外されて、記録メディア10が記録メディア装置20から取り出される。記録メディア10が記録メディア装置20から取り出されると、図1(A)に示すように、第1の蓋71が挿入口21を塞ぐ。

【0024】次に、本発明の一実施例になる記録メディア装置20について記録メディア装置の動作は図1(A)乃至(F)を参照しながら説明する。

【0025】図2は積み重なってドッキングしている記録メディア装置20をフロントベゼル22側の上方から見た斜視図、図3は記録メディア装置20を背面側の上方から見た斜視図、図4は記録メディア装置20を背面側の下方から見た斜視図、図5(A)は積み重なってドッキングしている記録メディア装置20の平面図、図5(B)は図5(A)中、B-B線に沿う断面図、図5(C)は底面図である。X1-X2は幅方向、Y1-Y2は奥行き方向、Z1-Z2は高さ方向である。各図中、図1(A)乃至(G)に示す構成部分と対応する部分には同じ符号を付す。

【0026】記録メディア装置20-1、20-2は積み重なってドッキングされた状態にある。上側の記録メディア装置20-1は、記録メディア10が記録メディア装置20内に装着されている状態にあり、下側の記録メディア装置20-2は、記録メディア10が記録メディア装置20内に装着されていない状態にある。

【0027】記録メディア装置20は、ベース部材100と、フロント部材110と、記録メディアホルダ30と、コネクタ40と、記録メディアホルダロック機構50と、記録メディアホルダ移動機構60と、蓋機構70と、イジェクト機構120と、カバー部材130等を有する。

【0028】ベース部材100は、図2及び図4に示すように、Z2側に配してあり、フロント部材110、ロック機構50、ホルダ移動機構60と、蓋機構70と、イジェクト機構120等を支持する。図3に示すように、ベース部材100には、Y2側の幅方向の両側及び

Y1側の幅方向の両側に、4つの脚部101及び受け部102が形成してあり、記録メディア装置20は単独で使用される他に、図2及び図5(B)に示すように、例えば二台の記録メディア装置20-1、20-2が上側の記録メディア装置20-1の脚部101を下側の記録メディア装置20-2の受け部102に固定されて、積み重なって連結されてドッキングされた状態でも使用される。

【0029】図2及び図5(A)、(B)に示すように、カバー部材130は、フロントベゼル22の直ぐY1側に配置されて、X1-X2側をベース部材100に固定されており、記録メディアホルダ30の上側を覆っている。カバー部材130と装着された記録メディア10の上面14との間に、開いて水平となっている第1の蓋71を収容するための空間131が形成してある。

【0030】図3に示すように、フロント部材110は、ベース部材100のY2側に固定してあり、挿入口21が形成してあるフロントベゼル22と、フロントベゼル22のうち挿入口21の両側の位置からY1方向に延びている2つの腕部111、112とを有する。

【0031】図3及び図5(B)に示すように、記録メディアホルダ30は、記録メディア10に対応する寸法形状を有し、ベース部材100の上方に位置して、腕部111、112に支持されており、腕部111、112に沿ってY1方向に移動可能である。この記録メディアホルダ30は、挿入された記録メディア10のY1側を保持する。コネクタ40は、記録メディアホルダ30のY1側端に、Y2方向に向いて固定してある。コネクタ40は、そのY1側には、別のコネクタ部41を有する。コネクタ40の接触端子は、コネクタ部41にまで延びている。図3に示すように、コネクタ部41に、フレキシブルフラットケーブル80の端のコネクタが接続してある。フレキシブルフラットケーブル80は、ベース部材100のY1側の立ち上がっている壁部103の穴104を通してガイドされている。

【0032】記録メディアホルダロック機構50は、図3に示すように、記録メディアホルダ30の上面に軸51に回動可能に支持されているロックアーム52と、ベース部材100上に固定してあるロック板53と、ロックアーム52上のロックピン54と、トーションコイルばねとを有する構成である。通常は、ロックピン54がロック板53に係止されており、記録メディアホルダ30はP2に位置して、Y1方向に動かないようにロックされている。記録メディア10を強く押し込んでも、コネクタ40の位置は固定されており、コネクタ11がコネクタ部42に確実に接続される。記録メディア10がそのコネクタ11がコネクタ部42に接続されるまで挿入されると、記録メディア10のY1方向の前端面17がロックアーム52を押して回動させ、ロックピン54がロック板53から外れて、ロックが解除され、記録メ

ディアホルダ30及びコネクタ40は押し込まれる記録メディア10によって押されつつY1方向に移動される。

【0033】記録メディアホルダ移動機構60は、図4及び図5(C)に示すように、トーションコイルばね61を使用した構成であり、一の腕部61aがベース部材100の下面に植わっているピン62に嵌合しており、別の腕部61bがホルダ30の下面に植わっているピン63に嵌合してある。P2に位置する記録メディアホルダ30がY1方向に移動されると、トーションコイルばね61の腕部61aと腕部61bとの開き角度 β が狭められ、P0で最も狭くなり、P0を通過すると、上記の開き角度が広くなるようになって、記録メディアホルダ30はトーションコイルばね61のばね力によってY1方向にP1まで移動される。P1に位置する記録メディアホルダ30がY2方向に移動されると、トーションコイルばね61の腕部61aと腕部61bとの開き角度が狭められ、P0で最も狭くなり、P0を通過すると、上記の開き角度が広くなるようになって、記録メディアホルダ30はトーションコイルばね61のばね力によってY2方向に元のP2まで移動される。

【0034】図5(B)に示すように、蓋機構70は、記録メディア10が収容されていないときに挿入口21を閉じている第1の蓋71と、記録メディア10が収容されているときに挿入口21を閉じている第2の蓋72とを有する。

【0035】イジェクト機構120は、図2に示すように、ベース部材100のX1側にY1-Y2方向に移動可能に支持されているロッド121と、ロッド121のY2端に固定してあり、フロントベゼル22の開口113から突き出ているイジェクト鉤122と、ベース部材100のY1端側に固定してある軸部材123に固定してあるイジェクトレバー124と、イジェクトレバー124のX2方向の端のイジェクトボール125とを有する。ロッド121のY1方向の端は、イジェクトレバー124のX1方向の端と連結してある。イジェクトボール125は、ホルダ30のY1方向の端と対向している。記録メディア10が記録メディア装置20内に装着されていない状態では、下側の記録メディア装置20のように、イジェクト鉤122は開口113内に凹んでおり、記録メディア10が記録メディア装置20内に装着されている状態では、上側の記録メディア装置20のように、イジェクト鉤122は開口113から突き出している。

【0036】イジェクト鉤122を押すと、イジェクトレバー124が反時計方向に回転され、イジェクトボール125がホルダ30を押してY2方向へ移動させる。

【0037】記録メディア10を収容する場合には、操作者は、記録メディア10を手で掴んで「MEDIA OUT」の表示部77aが見えている挿入口21内に挿

入して強く押し込む操作を行う。この操作によって、コネクタ11がコネクタ40に接続され、続いて、ロック機構50のロックが解除され、続いて、ホルダ移動機構60が動作して、記録メディア10が図5(B)の上側の記録メディア装置20-1に示すように、内部に引き込まれて収容される。

【0038】情報の書き込みが終了して記録メディア10を排出する場合には、操作者はイジェクト鉤122を押す。この操作によって、イジェクト機構120が動作し、ホルダ30がY2方向に移動され、途中からはホルダ移動機構60が動作して、ホルダ30がホルダ移動機構60によって移動され、図3に示すように、記録メディア10の後端部12が挿入口21から突き出す。

【0039】次に、本発明の要部をなすコネクタ40の位置を決めるコネクタ位置決め機構200について説明する。

【0040】図6はホルダ30がP2に位置しているときの状態、即ち、記録メディア10を挿入する前の状態である。図7はホルダ30がP1に位置しているときの状態、即ち、記録メディア10が装着されたときの状態である。図8及び図9は、コネクタ40の挿入口21に対する位置決め及び位置関係を示す。図8(C)は記録メディア10を挿入する前、即ち、コネクタ40がガイドレール111、112と嵌合しているときの位置決めの状態、図8(E)は記録メディア10を挿入してコネクタ11がコネクタ部42に接続される直前における位置決めの状態、図9(B)はコネクタ11がコネクタ部42に接続されて、コネクタ40が腕部111、112から外れた状態の位置決めの状態を示す。

【0041】このコネクタ位置決め機構200は、記録メディア10を利用してコネクタ40の位置を決める構成である。

【0042】図10に示すように、記録メディア10は、左右の側面に、その長手方向に延びているガイド溝18、19を有し、挿入方向の先端にコネクタ11を有し、且つ後端面12は円弧形状である。

【0043】図6(C)に示すように、フロント部材110は、合成樹脂の成形部品であり、挿入口21が形成してあるフロントベゼル22と、フロントベゼル22のうち挿入口21の両側の位置からY1方向に延びている2つの腕部111、112とを有する。挿入口21のサイズは記録メディア10に対応する大きさであり、特別に大きくはない。

【0044】腕部111は、図9(A)に示すように、内側の面に、Y1-Y2方向に延びているガイドレール111aを有し、Y1端に位置決めのためのフォーク部111bを有する。ガイドレール111aは台部111c上に形成してある。フォーク部111bは、二つの指部111b1、111b2と、この間の凹部111b3とよりなる。腕部112も、腕部111と同じ形状であ

り、ガイドレール112a及びフォーク部112bを有する。ガイドレール111a、112aがガイド部を構成する。フォーク部111b、112bが位置規制部を構成する。

【0045】ここで、腕部111、112はフロントベゼル22と一体であるため、ガイドレール111a、112aの挿入口21に対する位置の精度は高く、フォーク部111b、112bの挿入口21に対する位置の精度も高い。

【0046】図7に示すように、記録メディアホルダ30は、記録メディア10に対応するサイズであり、箱のY2側の面と上面とが開口とされている形状を有し、底板部32と両側の側板部31、33と、Y1側の上板部34とを有する。図6(B)及び図7(B)に示すように、記録メディアホルダ30は、腕部111と112とをZ2側から包んでおり、側板部31、33のY2側のZ1側の部分を折り曲げて逆U字に形成してあるフック部31a、33aが夫々腕部111、112に係止してあり、腕部111、112に支持されつつY1方向に移動可能である。フック部31a、33aの間に、第1の蓋71の軸部材71aが横架してある。底板部32には、記録メディア10の底面15が当たる切り起こし部32aが形成してある。

【0047】図9(A)に示すように、コネクタ40は、Y2方向を向いているコネクタ部42と、Y2方向を向いているコネクタ部41と、X2側の側面から出て、L字形状をなしてY2方向に延びている腕部43と、X1側の側面から出て、L字形状をなしてY2方向に延びている腕部44とを有する。腕部43及び44の内側の面には夫々Y1-Y2方向に延びているガイドレール45、46が形成してある。コネクタ40の接触端子は、コネクタ部42からコネクタ部41にまで延びている。コネクタ40は合成樹脂の成形部品でありコネクタ部41、42及び腕部43、44は一体であり、腕部43、44のコネクタ部42に対する位置の精度は高く、且つガイドレール45、46のコネクタ部42に対する位置の精度も高い。

【0048】コネクタ40は、記録メディアホルダ30の底板部32のY1側端の上面に固定してある。

【0049】ここで、フロント部材110、コネクタ40、記録メディアホルダ30は通常の寸法公差であり、コネクタ40の記録メディアホルダ30への取り付けの精度も通常の公差である。

【0050】次に、コネクタ部42の挿入口21に対するZ1-Z2方向の位置決めについて説明する。

【0051】ここで、Z21は挿入口21のZ1-Z2方向の位置である。Z42-1、Z42-2、Z42-3は、コネクタ部42のZ1-Z2方向の位置である。

(1) 記録メディア10を挿入する前の状態(図6(A)、図8(A)、(B)、(C)参照)

記録メディアホルダ30はP2に位置しており、図8(A)、(B)に示すように、腕部43、44が夫々フォーク部111b、112bに嵌合している。腕部43、44が夫々フォーク部111b、112bに嵌合していることによって、図8(C)に示すように、コネクタ部42の挿入口21に対するZ1-Z2方向の位置がZ42-1に決められている。

【0052】ここで、フォーク部111b、112bの挿入口21に対する位置の精度が高く、腕部43、44のコネクタ部42に対する位置の精度が高いため、コネクタ部42の位置Z42-1は、挿入口21の位置Z21に略対応する位置に位置している。

【0053】また、ガイドレール45、46は夫々ガイドレール111a、112aと整列している。

(2) 記録メディア10を挿入してコネクタ11がコネクタ部42に接続される直前の状態(図6(A)、図8(A)、(D)、(E)、(F)参照)

挿入口21を通して挿入された記録メディア10は、図8(D)に示すように、ガイド溝18、19が夫々ガイドレール111a、112aに嵌合しつつ挿入される。

【0054】記録メディア10が更に挿入されると、図8(E)に示すように、ガイド溝18、19のうちY1側の部分がガイドレール45、46に嵌合する。よって、ガイドレール45、46は、記録メディア10のガイド溝18、19によってガイドレール111a、112aと整列した状態とされ、コネクタ部42は、図8(F)に示すように、ガイドレール111a、112aを基準として記録メディア10を介して位置Z42-2に位置決めされる。

【0055】よって、記録メディア10を適宜動かしてコネクタ部42を捜し当てる作業をしなくても、記録メディア10を単に押し込むだけで、コネクタ11のコネクタ部42への接続は円滑になされる。

【0056】なお、記録メディア10は底面15を切り起こし部32aによってZ1方向に押し上げられており、ガイド溝18、19とガイドレール111a、112aとのZ1-Z2方向の遊びをZ1方向に寄せられている。よって、コネクタ部42の位置Z42-2は、ガイド溝18、19とガイドレール111a、112aとのZ1-Z2方向の遊びの影響を受けず、精度良く決まっている。

(3) コネクタ40がY1方向に移動して腕部111、112から外れた状態(図7(A)、図9(A)乃至(D)参照)

コネクタ部42は記録メディア側のコネクタ11に接続されており、コネクタ部42の位置はZ42-3は記録メディア10によって決定される。

【0057】図9(B)に示すように、記録メディア10のガイド溝18、19がガイドレール111a、112aに嵌合しており、記録メディア10の挿入口21に

対する位置は精度良く決定されている。

【0058】また、図9(C)に示すように、ガイドレール45、46がガイド溝18、19に嵌合しており、コネクタ40の記録メディア10に対する位置が決定されている。

【0059】よって、コネクタ部42は、コネクタ40が腕部111、112から外れた後も、挿入口21に対応する位置Z42-3に位置決めされ続ける。このため、イジェクト操作されて記録メディア10が排出されたときに、コネクタ40の腕部43、44は、フォーク部111b、112bに円滑に嵌合する。

【0060】なお、記録メディア10が、図11に符号10Aで示すように、側面に凸のガイドレール部140、141を有する構成である場合には、フロント部材110の腕部111A、112Aは夫々ガイド溝150、151を有する構成であり、コネクタ40の腕部43A、44Aも夫々ガイド溝160、161を有する構成とすればよく、前記の構成と同じ効果が得られる。

【0061】次に、コネクタ40の位置を決める別の実施例になるコネクタ位置決め機構200Bについて説明する。

【0062】図12はフロント部材110Bとホルダ30Bとを分解して示す。図13はホルダ30Bがフロント部材110Bに嵌合している状態を示す。

【0063】このコネクタ位置決め機構200Bは、位置決めのために、記録メディア10Bを利用しない構成である。記録メディア10Bは、左右の側面にガイド溝もガイドレールも有していない。

【0064】フロント部材110Bは、挿入口21Bが形成してあるフロントベゼル22Bと、フロントベゼル22Bのうち挿入口21Bの両側の位置からY1方向に延びている2つの腕部111B、112Bとを有する。腕部111B、112Bの内側に、ガイドレール170、171が形成してある。

【0065】記録メディアホルダ30Bは、底板部180と両側の側板部181、182とY1側の背面板部183とを有する略箱形状であり、コネクタ40Bが背面板部183に固定されて、内部にY2方向を向いて設けてある。側板部181、182の外側の面には、ガイド溝184、185が形成してある。図13(A)、

(C)に示すように、ホルダ30Bは、ガイド溝184、185を夫々ガイドレール170、171に嵌合されて、腕部111B、112Bに支持されて、腕部111B、112Bの間に収まっており、Y1-Y2方向に移動可能である。

【0066】図13(B)に示すように、Z1-Z2方向上に関して、コネクタ40Bの位置は、Y1-Y2方向上どの位置に位置していても、腕部111B、112Bのガイドレール170、171によって決められて、Z40Bに定められる。この位置Z40Bは、挿入口2

1Bの位置Z21Bに対応する位置である。また、位置Z40Bは記録メディア10Bの寸法公差の影響も受けない。

【0067】よって、記録メディア10Bを単に押し込むだけで、先端のコネクタ11Bのコネクタ40Bへの接続は円滑になされる。

【0068】なお、上記のコネクタ40Bの形状を工夫して、ホルダ30Bを無くして、コネクタ40B自身が、ガイドレール170、171に嵌合されて、腕部111B、112Bに支持されて、腕部111B、112Bの間に収まって、Y1-Y2方向に移動可能であるように構成してもよい。

【0069】

【発明の効果】上述の如く、本発明によれば、コネクタが移動可能に設けてあり、フロント部材の挿入口を通して挿入された記録メディアがコネクタに接続され、その後の記録メディアの挿入に応じてコネクタが移動される記録メディア装置において、コネクタは、フロント部材と一体の腕部のガイド部によって案内されつつ挿入された記録メディアを介して挿入口に対して位置決めされる構成、或いは、上記腕部によって挿入口に対して位置決めされる構成としてあるため、フロントベゼルにベース部材が取り付けられてあり、記録メディアホルダがベース部材上に支持されており、コネクタが記録メディアホルダに取り付けてある構成である従来の構成に比べて、部品の数が少なく、よって、部品の公差及び組立てのばらつきがコネクタの挿入口に対する位置の精度に及ぼす影響の程度を小さくすることが出来、よって、部品の公差を特別に厳しくしたり、組立てのばらつきを特別に厳しく抑えたりすることをしなくても、移動するコネクタの挿入口に対する位置の精度を従来に比べて高くすることが出来る。これによって、従来のように挿入口を特別に大きくしなくても、従来に比べて、挿入口を通して挿入された記録メディアがコネクタと接続される動作が円滑になされるように出来る。また、記録メディアの全体が収容される構成の記録メディア装置にあっては、記録メディアが挿入口を通して排出される動作が従来に比べて円滑になされるように出来る。

【図面の簡単な説明】

【図1】本発明の一実施例になる記録メディア装置の概略を示す図である。

【図2】積み重なってドッキングしている本発明の一実施例になる記録メディア装置をフロントベゼル側の上方から見た斜視図である。

【図3】記録メディア装置を背面側の上方から見た斜視図である。

【図4】記録メディア装置を背面側の下方から見た斜視図である。

【図5】記録メディア装置を示す図である。(A)は平面図、(B)は(A)中、B-B線に沿う断面図、

(C)は底面図である。

【図6】ホルダがP2に位置しているときの状態を示す図である。(B)は(A)中、B-B線に沿う断面図である。

【図7】ホルダがP1に位置しているときの状態を示す図である。

【図8】図6の状態におけるコネクタ位置決め機構及びこの機構の各部の状態を示す図である。

【図9】図7の状態におけるコネクタ位置決め機構及びこの機構の各部の状態を示す図である。

【図10】記録メディアを示す図である。

【図11】記録メディアと腕部との嵌合の変形例を示す図である。

【図12】別の実施例になるコネクタ位置決め機構を分解して示す図である。

【図13】図12のコネクタ位置決め機構の記録メディア挿入前の状態を示す図である。

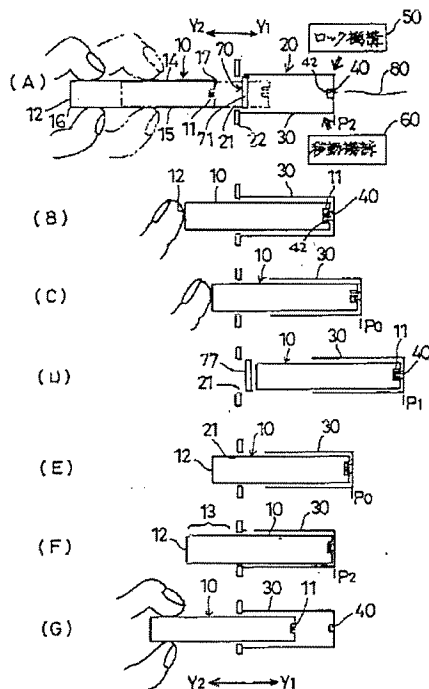
【図14】従来の記録メディア装置の概略構成を示す図である。

【符号の説明】

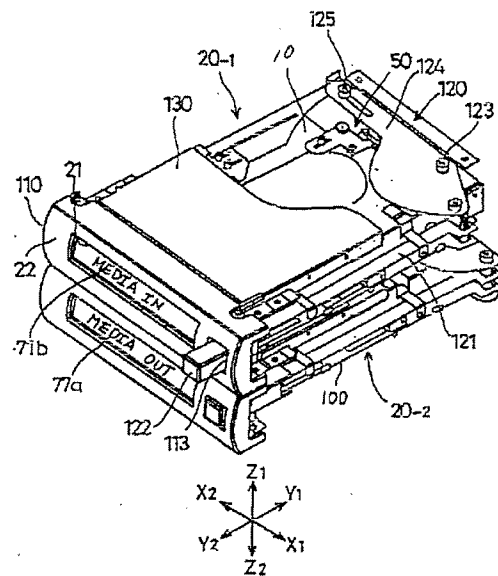
10、10A、10B 記録メディア
11 コネクタ
18、19 ガイド溝
20 記録メディア装置
21、21B 挿入口
22 フロントベゼル

30、180 記録メディアホルダ
31 側板部
40 コネクタ
42 コネクタ部
43、44 腕部
45、46 ガイドレール
50 記録メディアホルダロック機構
60 記録メディアホルダ移動機構
70 蓋機構
71 第1の蓋
75 蓋組立て体
76 アーム板部材
77 第2の蓋
100 ベース部材
106 フランジ部
110、110B フロント部材
111、112、111B、112B 腕部
111a、112a、170、171 ガイドレール
111b、112b フォーク部
120 イジェクト機構
140、141 ガイドレール部
150、151、160、161 ガイド溝
170、171 ガイドレール
184、185 ガイド溝
200、200B コネクタ位置決め機構

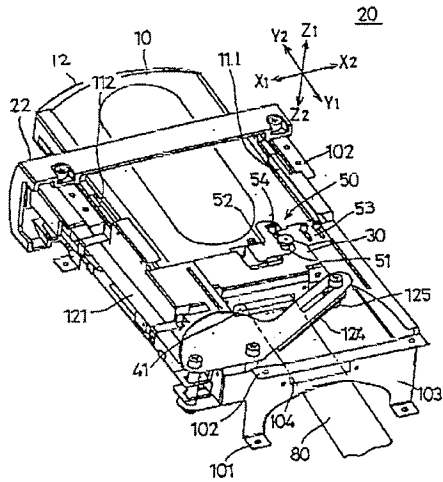
【図1】



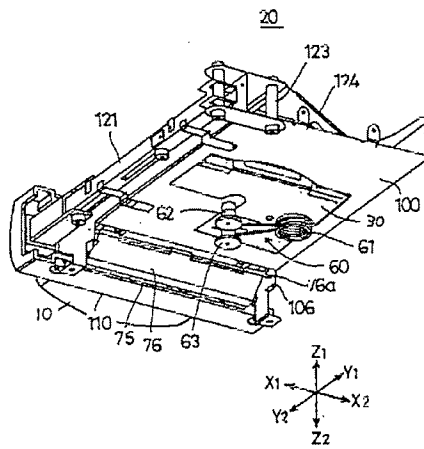
【図2】



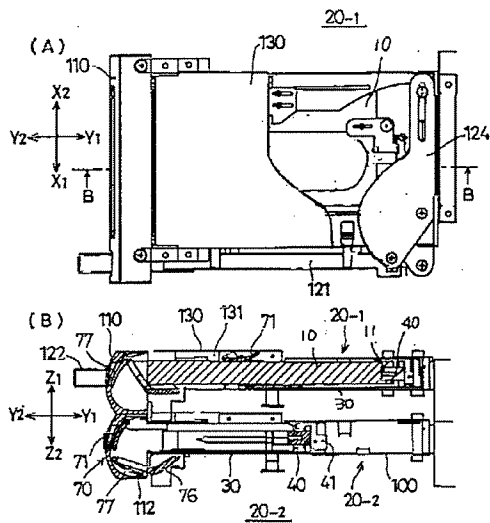
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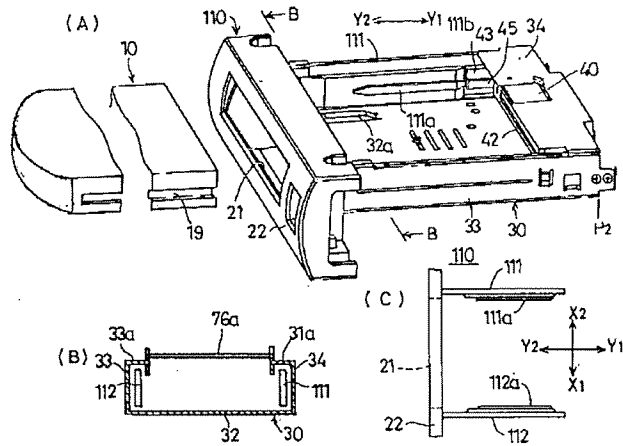
【図4】



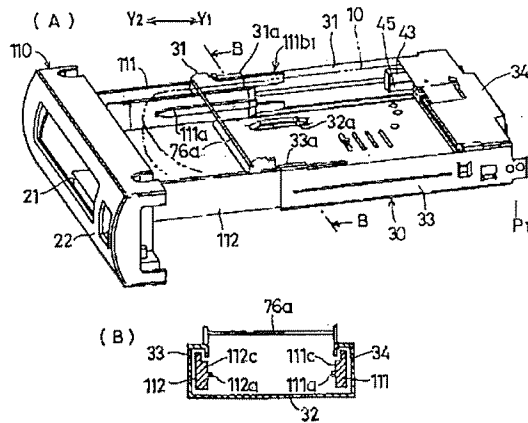
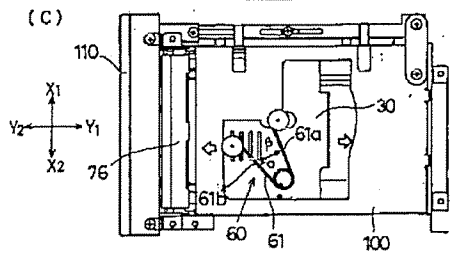
【図5】



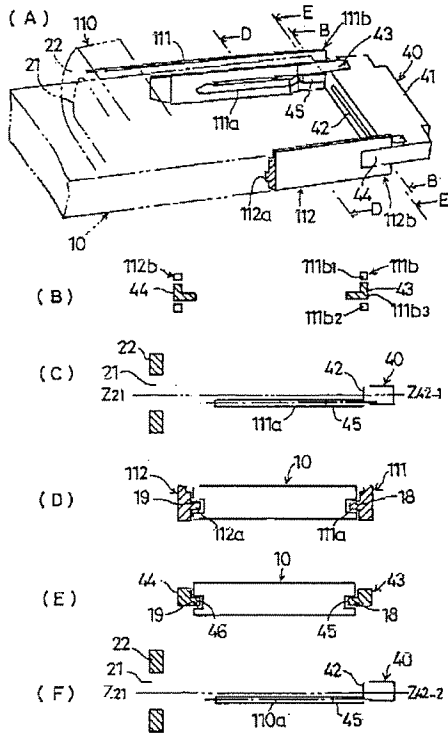
【図6】



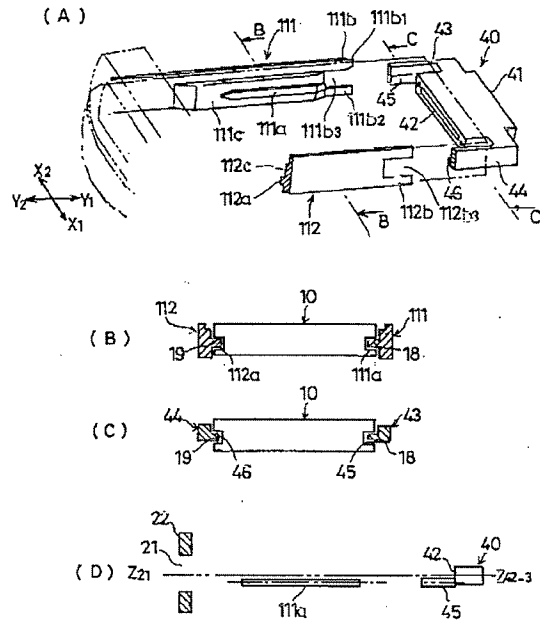
【図7】



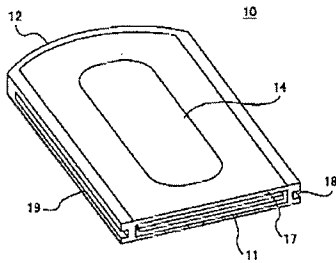
【図8】



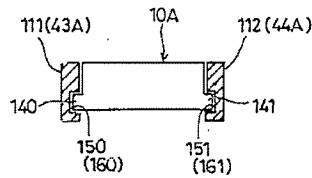
【図9】



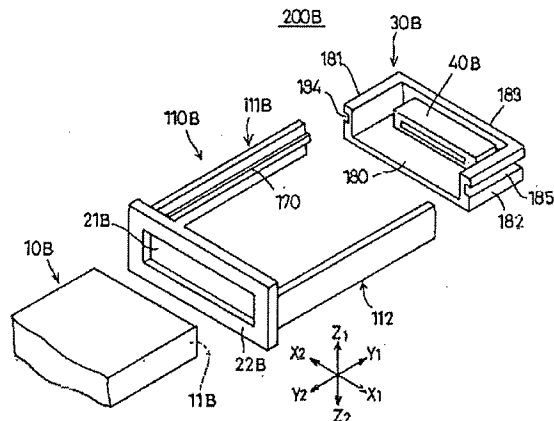
【図10】



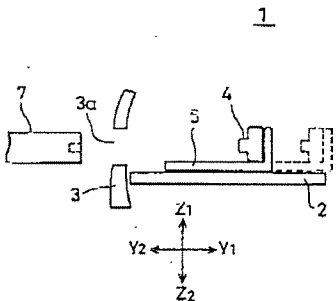
【図11】



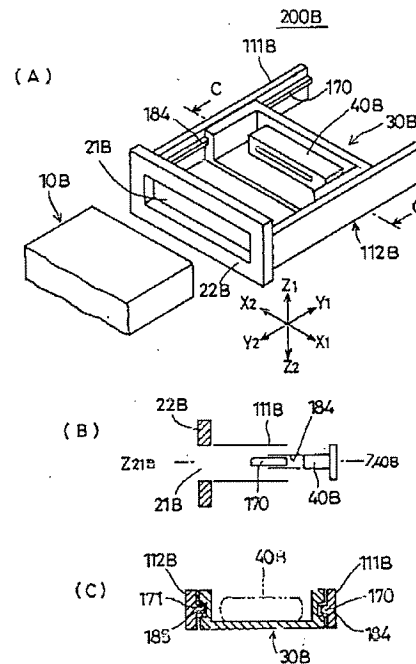
【図12】



【図14】



【図13】



フロントページの続き

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